# INNERMOST ASIA

## DETAILED REPORT OF EXPLORATIONS IN CENTRAL ASIA, KAN-SU AND EASTERN ĪRĀN

CARRIED OUT AND DESCRIBED UNDER THE
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## TO GUCHEN AND ACROSS THE T'IEN-SHAN

### Section I.—FROM BARKUL TO GUCHEN

At Barkul I was obliged to stay from the 4th to the 7th of October owing to the fact that the men and animals badly needed a rest after their long and trying journey, and also in order to secure some relief for myself from severe rheumatic pain brought on by exposure. The halt was made pleasant by the extremely kind welcome that I received from Mr. Li Shu-jung, 李樹榮, the scholarly district magistrate (Fig. 297), and from the aged Chên-t'ai, commanding the Chinese garrison, as well as by the comfortable quarters prepared for us in the temple where stands the inscription recording P'ei Ts'ên's victory of A.D. 137 (Fig. 291). Such quarters were doubly welcome as winter was fast approaching, the first snow-fall occurring during our halt. In addition to survey trips which my assistants were able to make to the shore of the Barkul lake and to the mountain spur overlooking the Kara-gol valley south of the town, this stay offered opportunities of collecting a variety of useful information not only with regard to local conditions, but also concerning the ground that lay ahead of us, along the northern foot of the T'ien-shan. Li Ta-lao-yeh, a native of Guchen and formerly a teacher in that town, had obtained official employment only through the changes brought about by the revolution. Nevertheless he displayed all the regard for scholarship and keen interest in things historical and antiquarian that distinguished such learned Mandarins of the old school as P'an Ta-jên, my kind patron of Khotan and Ak-su, or Wang Ta-lao-yeh, my helpful friend of Tun-huang.[1] Stay at Barkul.

It was through Li Ta-lao-yeh that I first obtained exact information about the ruined site beyond Guchen marking the ancient *Chin-man* 金滿 or *Pei-t'ing* 北庭, and about the direct route southwards across the mountains by which I wished to make my way to Turfān. I also received shrewd hints from him as to the reasons why Chinese policy has persisted in the endeavour to keep nomads away from the Barkul grazing grounds and to attract Chinese colonists to all cultivable ground in the valley, while rigorously excluding Tungans. Important routes branch off from Barkul to Kobdo in the north and Uliassutai in the north-east, places that were garrisoned by the Chinese as holds upon Outer Mongolia until the revolution and the subsequent proclamation of Mongol 'independence' under Russian patronage brought about their abandonment. It was evidently in order to guard these routes that Barkul was now provided with a garrison, large out of proportion to the size of the town and to the population of the district and, as it seemed to me, better armed and officered than the so-called 'military' forces scattered through the districts of the Tārīm basin. The town of Barkul, said to date from the times of the Emperor Ch'ien-lung, when a military colony was established there, holds a population reckoned at about two thousand families and, with the exception of some Muhammadan traders from Kāshgar, exclusively Chinese. But many of the houses looked deserted, while the large walled town eastwards, which was once occupied by the Manchu garrison, has lain completely in ruins ever since the Tungan rebellion. Modern importance of Barkul.

[1] Cf. *Ancient Khotan*, i. pp. vii, 358, 507; *Serindia*, i. p. x; ii. p. 608; iii. 1297; *Desert Cathay*, ii. pp. 15, 33, 69, 421 sq.

Nomadic migration towards T'ien-shan.

The wide belt of the Dzungarian desert separates the Barkul basin and the T'ien-shan slopes adjoining it east and west from the Mongolian grazing grounds in the Altai. Yet the conditions prevailing in the latter as a result of the disappearance of Chinese political control had reacted upon the authorities responsible for the safety of Barkul. Large tribes of Muhammadan Kazaks, of Turkish speech and descent, had after some fighting with Khalkha Mongols been forced during the last three years to seek refuge in the south. The Chinese administrators had not been able to refuse them access to the pastures afforded by the T'ien-shan slopes between Urumchi and Barkul. But they manifestly felt very uneasy about the presence of these nomads along the range dominating the main lines of communication with China, and had done their best to limit their numbers in the area east of Urumchi. None of the Kazaks had been allowed to reach the grazing grounds east of the Barkul lake, and in the hills to the west through which we subsequently passed on our way between Barkul and Ta-shih-t'o (Map No. 31. c. 1) we heard only of two sub-sections of seven hundred and eight hundred tents, respectively, being established.

Chinese apprehension of nomadic movements.

I observed with interest the instinctive apprehension with which my kind hosts at Barkul were watching the moves of these unwelcome arrivals from the north and the administrative measures by which they were endeavouring to secure that they should 'settle down' in the area allotted to them. Their efforts were evidently prompted by the traditional fear, only too well founded on the experience of centuries of Chinese history, that these nomadic 'barbarians', once set moving by attacks of their neighbours, would not be content to remain in the area to which they had received admission, but would soon set out in search of grazing grounds more to their liking—or of loot, perhaps, even more attractive. It was not to be expected that they would obtain either without the use of force against other tribes already in possession. Thus tribal movements might be started, gathering avalanche-like in volume, like those mighty migrations that in the past had swept across Central Asia, subverting peace and order in the civilized regions either of China or the West.

Transport supplied by Kazaks.

One of the administrative measures adopted to secure due recognition of Chinese authority among the new arrivals was the obligation imposed upon the Kazaks of supplying pony transport for officials, couriers, &c., travelling on the routes that branch off from Barkul. The use of this transport (no doubt, gratuitously exacted in the case of local officials) was pressed upon me by the kindly district magistrate, and I was glad to take advantage of it on our journey to Guchen, in place of some of our hard-tried animals that particularly needed care. To this assistance, for which, needless to say, adequate remuneration was paid by me into the hands of the Kazak owners, we owed our easy and rapid journey to Guchen, close on two hundred miles covered in nine consecutive marches. It moreover had the advantage of enabling me to obtain some glimpses of a people affected by what seemed a curious, if faint, reflex of those great tribal movements which since the days of the Ta Yüeh-chih, the later Indo-Scythians, and probably long before them, had moved along the great Dzungarian passage land.

Racial type of Kazaks.

The Kazaks whose ponies we picked up from successive encampments near our route were without exception fine upstanding men of brave bearing (Fig. 293); their features were singularly free from marked 'Mongolian' characteristics. In this respect they differed quite as strongly from the Kirghiz, with whom I had become familiar in the western T'ien-shan and on the Pāmīrs,[2] as from the Mongols on the Etsin-gol and Kara-shahr river. The rapidity of our journey left no time for the collection of adequate anthropometrical data. But the impression I gained was that this Kazak stock contained a large infusion of 'Caucasian' blood, derived perhaps from a population of the 'Homo alpinus' type, which is best represented in Central Asia by the 'Galchas' of the valleys adjacent to the Pāmīrs and forms a main constituent in the population

[2] Cf. *Serindia*, iii. pp. 1300, 1358.



289. KARLIK-TĀGH RANGE SEEN FROM KARA-SINGIR, ON WAY TO TUR-KÖL, EASTERNMOST T'IEN-SHAN.



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of the Tārīm basin.[3] I was struck, too, by the show of good clothing worn by the men who were in charge of the hired ponies, including in many instances materials from far-away Europe or China.

Nomadic wealth and comfort.

Considering that these men were not chiefs or even headmen, it seemed a good illustration of that nomadic wealth and comfort for which historical students in the West are apt to give inadequate credit to the Asiatic invaders of Europe during the period of the great migrations. A large party of burly Kazaks whom we met on the way were driving some sixty camels and as many mares as the wedding price for a girl to be married from a Kazak family in the hills near Urumchi. It looked like a picture out of distant times and scenes. That my Chinese Mandarin friends of Barkul had reason to apprehend trouble from these tribal visitors to the district could be gathered from what some of the Kazaks told me of their scant satisfaction with the pastures allotted to them in these tracts, and of their eager wish to regain their old grazing grounds in the Altai. No doubt, it might mean fighting, and the possession of the latter would be less secure. But then they were so much richer in water, grass and game. There was no mistaking the spirit alive in these men and the ancient inheritance that it betokened.

T'ien-shan slopes west of Barkul.

As our journey from Barkul to Guchen lay along a regular route already followed by European travellers, there is no need to give a detailed description of the ground we traversed. But a brief indication of the chief physical features which characterize its several sections may be useful; for those features help to throw light on points of ancient topography to which reference has been made above in the discussion of the historical notices concerning Barkul. The first section comprises the western end of the Barkul basin. It extends from the wide grassy plain that surrounds the lake and is watered by numerous springs, up to the ill-defined watershed dividing the basin from the valley of the stream that drains towards Chi-chi-t'ai-tzŭ (Map No. 31. D. 1). This area affords plentiful grazing not merely around the lake, but also on the open steppe rising above it westwards and at the bottom of the numerous small valleys that descend from, and intersect, the plateau-like watershed. This comparative plenty of vegetation is due to the fact that the range to the south, though not reaching the permanent snow-line, is yet high enough to attract adequate moisture, especially during the winter months. In consequence of this the northern slopes support a more or less continuous forest belt down to a level of about 8,000 feet; in places tree growth extends even lower down on the eastern faces of side spurs. Springs are to be found at intervals along the route and probably are numerous on the slopes descending towards it from the south.

Depression in T'ien-shan.

After the watershed is passed between low broken ridges at an elevation of about 7,400 feet, between the roadside stations of Lo-t'o-ch'üan-tzŭ and Wu-tun-shui, vegetation becomes distinctly sparser. No trees were observed on the northern slopes of the main range. Yet this still attains a height of close on 9,000 feet at a point south of the halting-place of Tê-shui-ai-tzŭ and receives sufficient moisture at all seasons to feed the small stream that we passed there (Map No. 31. D. 1). The main valley farther north, into which this stream drains and which the cart-road (not followed by us) descends to Chi-chi-t'ai-tzŭ, probably contains springs; for at this pleasant little station, guarded by a few soldiers, we found a lively stream and some cultivation. The same stream some four miles farther west turns due south and, in a gorge, breaks through what apparently is the lowest portion of the whole T'ien-shan range between the Karlik-tāgh and the Bogdo-ula massif south-east of Urumchi. At the small oasis of Ka-hsün-kou which is irrigated by this stream and occupies the fertile bed of the valley, the elevation indicated by the aneroid was less than 5,000 feet above sea-level. From here an open valley appeared to descend gently towards the depression of Ch'i-ku-ching, which lies on the Hāmi–Turfān high road. Thence the route ascends south-westwards, as Map No. 31. C, D, 1 shows, to plateau-like ground, and after striking the high road coming from

[3] See Mr. Joyce's Appendix C, *Serindia*, iii. pp. 1368 sq.; also his App. C below.

Ch'i-ku-ching, crosses the watershed on this depressed portion of the range by a saddle about 5,600 feet above sea-level. In the valley leading down north-westwards to the station of Ta-shih-t'o (Fig. 290) a small stream gathers from springs, which permits cultivation to be maintained for a couple of miles. Here the second section of the ground may be considered to end; for beyond, a waterless stony waste extends along the foot of the range, practically without vegetation, for a distance of over thirty miles.

Position of Eastern *Chü-mi*.

When discussing above the topographical notices furnished by the Later Han Annals and the *Wei lio* of the territories along the northern slopes of the T'ien-shan, I called attention to the definite indication furnished by the latter text as regards Eastern *Chü-mi* 東且彌. It is mentioned as the first and easternmost of the territories reached north of the range by the 'new route of the north' after emerging from the desert to the south-east.[4] In view of the plain and unalterable geographical facts, there can be no possible doubt that the 'new route of the north' leading to those territories from the Jade Gate must have crossed the T'ien-shan, just as the present high road does, by the saddle above Ta-shih-t'o. The fact, I believe, justifies us in assuming that the ground described by me as the second section belonged to Eastern Chü-mi. It is possible that the first section crossed by our route was also included in this territory.

Extent of Eastern Chü-mi under Later Han.

From the circumstance that the description in the Later Han Annals mentions only Eastern Chü-mi and not Western Chü-mi, which the *Wei lio's* list names as lying next to the west, Hsü Sung, the commentator of the *Hou Han shu*, concludes that the latter territory was at the time of the Later Han dynasty absorbed by Eastern Chü-mi.[5] In support of this assumption it may be pointed out that the notice in the Later Han Annals, which describes the people of Eastern Chü-mi as nomads, living in huts and tents and having but little cultivation, ascribes to them a total of three thousand households, while attributing a total of only a thousand to the 'kingdom of I-chih' 移支 which, we have seen, must be identified with the valley of Barkul.[6] For this comparatively large population of Eastern Chü-mi we should find it easy to account, if the territory at the time included not only the valleys and plateaus west of Barkul which we have briefly described, but also the much better watered slopes of the rising portion of the range above the road between Mu-li-ho and Guchen. There we find abundant forest clothing the spurs and higher valleys, while cultivation can, to a fair extent, be practised lower down.

Barren stony plateaus.

On October 13th we crossed the barren stony and utterly waterless plateaus that lie between Ta-shih-t'o and the wretched roadside station of San-ko-ch'üan (Map No. 31 B. 1). The march of twenty-seven miles was covered in a trying blizzard. These plateaus offered a characteristic sample of the region that stretches along the northern foot of the depression in the range. This third section of the ground may be said to extend westwards for about another fourteen miles, taking the form of a clayey steppe with very scanty scrub. Throughout this section there is practically no grazing to be found, except perhaps in some glens where the range again rises to heights of over 10,000 feet.

Pastures above *Mu-li-ho*.

A marked change in the aspect of the country occurred when we reached the first cultivation at the village of Mu-li-ho. It was quite Chinese in its appearance and population; but among its inhabitants was found a well-to-do Yārkandī trader who claimed to be a British Indian subject and offered hospitable shelter. He had come to this place by reason of the recent migration of the Kazaks, with whom he had previously traded for years in their old seats on the Altai, while he himself resided in Kobdo, Uliassutai, &c. The information he was able to give about the new grazing grounds occupied by his Kazak *clientèle* on the T'ien-shan slopes to the south was the more

[4] See above, pp. 542 sq.

[5] Cf. Chavannes, *T'oung-pao*, 1905, p. 557, note 1.

[6] See Chavannes, *T'oung-pao*, 1907, p. 210; above, p. 542.

welcome that the hazy atmosphere in which we had travelled ever since the blizzard caught us at Ta-shih-t'o had completely obliterated all distant views.[7] Ibrāhīm Ākhūn informed me that rich pastures are to be found among the wooded spurs and valleys that descend from the T'ien-shan towards Mu-li-ho and the other oases farther west. This was fully in keeping with what might be expected, having regard to the great height that the range here reaches. But I was surprised to learn at the same time how human activity, aided by the favourable climate, was modifying the use of those pastures.

The notable change of climatic conditions that occurs along this portion of the range is best illustrated by the fact that on the slopes lying below the forest zone cultivation can be carried on without irrigation. Farther down, in the oases which the high road to Guchen crosses, watering from canals is necessary to supplement the moisture derived from rain and snow. Ibrāhīm Ākhūn placed the northern limit of unirrigated lands at a distance of about 'thirty *li*' or roughly six miles from the road, and this statement was subsequently confirmed by what I myself observed on my way from Jimasa to Ch'ūan-tzŭ-chieh (Map No. 28. c. 1). All this cultivation is carried on by Chinese colonists, whose numbers are being steadily increased by new settlers drawn from China proper. Some idea of the extent and value of the lands thus brought under new cultivation could be gathered from the statement that thousands of Turfān labourers come every summer from across the mountains to be employed in harvest and other operations at wages greatly in excess of the rates prevailing in the oases of the Tārīm basin. Thus the close intercourse which, since ancient times, must have existed between 'Anterior and Posterior Chü-shih', i. e. Turfān and the present Guchen region, notwithstanding the mountain barrier, was rendered manifest by a modern illustration immediately on my approach to this string of northern oases. The rapidly proceeding development of the agricultural resources offered by the mountain slopes was evidently leading already to a restriction of the available pastures; for the fifteen hundred odd 'tents' of Kazaks that had moved from the north to the Guchen tract were reported to be finding the allotted grazing lands inadequate to the needs of their herds and flocks, and to be eager to return to the Altai. Cultivation without irrigation.

At Mu-li-ho I felt that we had entered the fourth section of our journey from Barkul, and the impressions there received were fully confirmed on the two marches that brought us to Guchen on October 16th. The route was now leading downwards and farther away from the mountains. Yet the country that we traversed west of Mu-li-ho throughout showed the character of a grassy steppe, where not actually under cultivation. From the eastern edge of the large tract that once formed the separate sub-prefecture of Chi-t'ai-hsien (Map No. 28. D. 1), cultivation became continuous and in the main seemed to be dependent on rainfall only, canals being shallow and few. The agricultural population here, too, was entirely Chinese; but the neglected condition of most of the fields suggested that it was either still not large enough to cultivate all the available land, or else was being drawn away to ground farther to the south where more certain rainfall assured better crops. Beyond the Chi-t'ai-hsien tract the route descended a wide alluvial fan covered with plentiful vegetation but uncultivated. Far away to the north high dunes of sand could be seen, outposts of Dzungarian desert belt that separates the foot of the T'ien-shan from the southernmost outliers of the Altai. Cultivation about *Chi-t'ai-hsien*.

In the midst of an area clothed with abundant grass and scrub but only sparsely cultivated, stands the large town of *Ku-ch'êng-tzŭ* (or *Guchen* as it is known in Turkī). Its population, large Bazars and massive circumvallation give it all the appearance of a true Chinese city. Its *Ku-ch'êng-tzŭ* or Guchen.

[7] The mountains to the south were quite invisible on our marches from Ta-shih-t'o to Guchen. They were subsequently surveyed by Lāl Singh, whom I sent from Guchen for the purpose via Jam-bulak and the Ku-ch'ūan pass (Map No. 31. B. 1, 2).

situation, near the eastern extremity of a belt of fertile oases stretching along the foot of the Bogdo-ula massif, makes it the convenient starting-point for a series of important trade routes into Mongolia, as well as towards south-western Siberia and the westernmost marches of true China. At the same time Guchen is assured easy access, through Urumchi, the present capital of the New Dominion, to the great fertile valley of Ili in the west and also, via the Turfān depression, to the high road connecting the chief oases of the Tārīm basin. Without reference to Chinese texts I am unable to determine whence the name *Ku-ch'êng-tzŭ* 古城子, meaning the 'ancient town', is derived. A ruined town site north of Guchen was mentioned to me by Li Ta-lao-yeh as attributed to T'ang times. But I regret not to have been able to visit it or to secure local information about it.

Commercial importance of Guchen.

During my two days' stay at Guchen, I noticed evidence in many directions of the importance it enjoyed as a commercial emporium. The hospitable reception that Sir George Macartney's kind recommendation had assured me under the roof of a rich Kāshgarī trader allowed me to observe, by many unmistakable signs, the great influence which Russian trade, carried mainly from Semipalatinsk and the Trans-Siberian Railway, has exercised all through the western towns of Dzungaria. The presence of parties of Mongols at the Ya-mêns of Guchen showed that the declaration of 'Independent Mongolia' had by no means interrupted the relations of old standing which geography has established between the nomadic populations of the Altai and the oases on both sides of the T'ien-shan.

Close intercourse with Turfān.

Still more was I interested to remark evidence of that close intercourse with the Turfān basin which is suggested by all the historical data in our possession. Large numbers of Turfān people were to be met with in the Bāzārs, mostly labourers preparing to return home after the summer's work north of the mountains. The others were traders; these bring chiefly cotton and fruit, produce which the warm climate of Turfān favours and which are lacking in the colder regions of the north. They carry back flour, sheep, felts and the like, which the Guchen tract either produces in plenty or else receives from its nomadic neighbours. The abundance of Turfān fruit displayed on all sides afforded ocular proof that the high range to the south, in spite of its snowy crest and its ruggedness, formed no effective barrier between the two territories that the Chinese significantly designated as those of the 'Anterior and Posterior kings of Chü-shih'.

## Section II.—THE SITE OF PEI-T'ING AND THE POSTERIOR COURT OF CHÜ-SHIH

Reasons for turning to Turfān.

Many as were the points of geographical interest that this region along the northern foot of the snowy range seemed to offer, two practical considerations of importance rendered it necessary for me to limit my stay there and to turn south to Turfān before long. The Turfān basin was to serve as our main base for the work of the autumn and winter. The programme I had planned for Lāl Singh comprised extensive surveys, including triangulation, in the desert region of the Kuruk-tāgh. The conditions there prevailing necessarily limited operations over a great portion of that area to the few months during which the salt springs were frozen and water could be carried in the form of ice. It was essential for me to make timely arrangements at Turfān by which Lāl Singh might start as soon as possible on the task, to which he looked forward with eagerness. I myself wished to reach Turfān by travelling direct across the mountains due south, and thus to pass through a portion of the main T'ien-shan range that had never been surveyed.

Mountain route to Turfān.

My desire to follow the direct line connecting Guchen with Turfān town had been greatly increased when I discovered, in the course of discussions on antiquarian subjects with learned Li Ta-lao-yeh of Barkul, that a much-frequented mountain route between the two places, that

crossing the pass of Pa-no-p'a, was evidently identical with a route described in an itinerary of the T'ang Annals, translated by M. Chavannes, as leading from the old capital of Turfān *Chiao-ko* 交河, the present Yār-khoto, to *Pei-t'ing* 北庭. This place, the seat of an important Chinese Protectorate of T'ang times, corresponding to *Chin-man* 金滿 of the Han period,[1] had been correctly located by a Chinese antiquarian scholar, Hsü Sung, the author of the *Hsi yü shui tao chi*, at a ruined site to the north of the town of Jimasa, situated one march to the south-west of Guchen. It therefore seemed easy to combine a visit to the remains of Pei-t'ing with the subsequent journey due south by the Pa-no-p'a pass.

But Li Ta-lao-yeh had not failed to warn me that the Pa-no-p'a pass was liable to be closed for a time by heavy snow-fall in the autumn, and moreover the state of my leg still made riding rather trying and walking for any but short distances very difficult. It was therefore wise to avoid the risk entailed by a long postponement of the crossing. As the route is practicable only for mules, ponies, or donkeys, and in places, as I found later, difficult even for these when laden, I decided to send our camels with all dispensable baggage to Turfān across the Ku-ch'üan pass (Map No. 31. B. 1, 2). This easterly route, leading via San-ko-ch'üan towards Pichan, is the nearest in that direction by which laden camels can be taken. Lāl Singh was put in charge of the convoy and thus secured an opportunity for surveying that portion of the range which the persistent dust-haze, following the blizzard of October 12th–13th, had rendered completely invisible during the days of our journey to Guchen.

Lāl Singh sent across *Ku-ch'üan* pass.

On October 19th I started with Afrāz-gul from Guchen by the high road leading to Urumchi. A march of thirteen miles, through a grassy steppe crossed by a number of streams and dotted in places with village lands, brought us to the eastern edge of a large tract of continuous cultivation belonging to the sub-prefecture of *Fu-yüan*.[2] From the small and modest town which contains its head-quarters and is generally known by its non-Chinese name of Jimasa, I visited on the following day the ruined site where the ancient *Pei-t'ing* has been rightly located. Before I record the observations made at the site, which, as far as I know, has so far not been described by any European archaeologist, I may here briefly indicate the reasons in favour of this important identification, as extracted by M. Chavannes from Hsü Sung's geographical treatise published in 1823.[3]

March to Jimasa (*Fu-yüan*).

The identification primarily rests upon a Chinese inscription of the T'ang period actually found at the site, which definitely proved that it was once occupied by the sub-prefecture of *Chin-man* 金滿.[4] A passage of the *Chiu T'ang shu*, composed in the second quarter of the tenth century, states that 'Chin-man in Later Han times was the seat of the Posterior king of Chü-shih 車師後王'. When the kingdom of Kao-ch'ang (Kara-khōja), i.e. Turfān, passed under Chinese domination in A.D. 640, the district head-quarters of *T'ing Chou* 庭州 were established there. Subsequently this district was changed in A.D. 702 into the Protectorate of *Pei-t'ing* 北庭, constituting one of the Four Garrisons among which the Chinese dominions in Central Asia were administratively divided. The above passage of the *Chiu T'ang shu* also states that the ancient royal seat of Posterior Chü-shih comprised five towns, 'whence its popular designation was the territory of the five towns 五城'. Hence Hsü Sung, and apparently other Chinese antiquarians before him, very justly concluded that the well-known Turkī name *Bēsh-balik*, meaning 'the five towns', borne during

Location of *Pei-t'ing*.

[1] See Chavannes, *Turcs occid.*, p. 11.

[2] Fu-yüan 孚遠 is the Chinese official name in present use. The former designation, as given in the *Hsi yü shui tao chi*, was *Pao-hui* 保惠; see Chavannes, *Turcs occid.*, p. 11.

[3] Cf. Chavannes, *Turcs occid.*, pp. 11, 272.

[4] This inscription may be the same as that referred to in the abstract from the *Hsi yu lu*, the work of Chingiz Khan's minister Yeh-lü Ch'u Ts'ai, as being at Bēsh-balik; cf. Bretschneider, *Med. Researches*, i. p. 15.

mediaeval times by Pei-t'ing, is but the reproduction of a far more ancient designation.[5] Hsü Sung had also duly recognized the identity of Pei-t'ing with the town which, when in possession of the Western Turks, was known as the town of *Kagan-stūpa* 'the Khān's Stūpa' (*K'o-han-fou-t'u* 可汗浮圖) and under this name is mentioned also in Hsüan-tsang's Life.[6]

Chinese texts supporting location.

It is not within the scope of this work to show in detail that this location of Pei-t'ing is fully borne out by the very numerous passages of T'ang texts in which this important centre figures; M. Chavannes's work, the *Documents sur les Tou-kiue occidentaux*, has rendered them accessible to students who are not Sinologues. Still less can I attempt to discuss the question as to which particular five towns were supposed at different periods to be comprised in the popular territorial term of which the familiar *Bēsh-balik* is the mediaeval Turkī rendering. It must suffice here to point out that the T'ang itinerary relating to the route via Pa-no-p'a to Turfān brings us by its bearings and distances exactly to the ruined site identified by Hsü Sung with Pei-t'ing.

Visit to site beyond *Hu-p'u-tzŭ*.

On the morning of October 20th I started from Jimasa northward for *Hu-p'u-tzŭ* 護堡子,[6a] the village beyond which the ruined town was said to be situated. The way to it led for about five miles through cultivated ground, crossed by a number of canals and deep-cut nullahs in which springs gather into small streams. It is the water from the latter—*kara-su*, to use the Turkī term current in the oases along the foot of the K'un-lun—which irrigates the fields lower down, while higher up, near the town of Jimasa, irrigation is supplied by streams descending from the mountains. An abundance of elms and other trees along the boundaries of the fields suggested a fertile soil. But there were signs that in this tract cultivation had not yet recovered from the devastation attending the Tungan rebellion. Within the village of Hu-p'u-tzŭ, wholly Chinese and enclosed by a tumble-down clay wall, most of the houses were in ruin. Passing fields and groves for about another two miles, we arrived at a wide open area. There, to the west of a broad marshy nullah drained by a stream flowing northward rise the remains of the massive clay walls that once protected the ruined town.

Walls enclosing ruined town.

The outer walls, as seen in the sketch-plan Pl. 23, appear to have once enclosed a roughly rectangular area, measuring approximately 2,160 yards from north to south and 1,260 yards from east to west. But the north-eastern portion of this circumvallation has completely disappeared, evidently through the eroding action of the stream which drains the marshy depression above mentioned and which here takes a turn to the north-west. Other portions also of the walls, both of the outer circumvallation and of an irregular-shaped inner enclosure, have suffered great decay. In places it was only in the course of plane-tabling that the connexion between the succession of detached clay mounds could be clearly traced. Judging from the best-preserved segments near the north-western corner the outer walls appear to have had a thickness of about 30 feet at their base and a height of over 20 feet, with bastions still more massive at the corners. The inner enclosure built against the east wall would seem to have had about the same strength and has suffered equally. Along portions of the outer enclosure cave-like rooms have been cut into the clay: judging from their smoke-begrimed appearance they once served as dwellings. Those seen on the inside of the north-western corner bastion (Fig. 294) had apparently been recently searched. The floors of some others were cleared in our presence without any finds resulting.

Decay of interior.

The condition of far-advanced decay displayed by the walls, in places approaching to complete effacement, seemed to me to prove both that the site had long been abandoned and that there was

[5] Regarding the identity of *Bēsh-balik* with Pei-t'ing, see Bretschneider, *loc. cit.*, i. p. 66; ii. pp. 27 sqq. See also Ritter, *Asien*, i, pp. 382 sqq., for mediaeval notices, taken from A. Rémusat and Klaproth. The location of Bēsh-balik at Urumchi, accepted by Klaproth, *Mémoires relatifs à l'Asie*, ii. 355 sqq., has proved erroneous.

[6] Cf. Chavannes, *Turcs occid.*, p. 193.

[6a] The spelling *Huo-p'u-tzŭ* in Map No. 28. C. 1 is erroneous.

much moisture both in atmosphere and soil. The same conclusion was suggested by the condition of the interior. This is almost everywhere honeycombed with pits dug by the people of the neighbouring villages, who have evidently for a long time been accustomed to extract soil for manuring. It is the same process that causes all old village and town sites in northern India to be excavated for what is known in the Panjāb as *khaura*. The absence of clearly recognizable structural remains of any size within the enclosed area may be partly due also to the extensive use which was probably made of timber, so easily secured here from the mountain forests, in the construction of all buildings. Only in a few places could I distinguish mounds, none of them large, which may mark more important structures. All of them have been excavated for manure.

About 250 yards to the south-east of the north-western corner of the outer circumvallation I came upon remains of what evidently was a small Chinese temple. Much-broken walls of vertically set brickwork rose half a dozen feet above the debris that filled the interior. The condition of the ruin suggested at first sight that it must have survived longer than the rest of the structures which once occupied the interior. Local worship had probably continued at the shrine for some period after the abandonment of the site. This was confirmed by the result of a little clearing carried out with the help of a few Turfān labourers who had joined us at Guchen in the hope of future employment in their own district. Along the centre of the north wall the floor of an image platform was laid bare at a depth of about 3 feet from the surface. Among debris of burnt timber and bricks we recovered a number of relievo fragments in stucco, all showing the effects of accidental burning by their hardened and discoloured condition. Among these stucco remains, described in the List below, two small well-modelled heads, Hu. 01, 05 (Pl. LXIX), and a relief group of two fighting sheep, of excellent execution, Hu. 02 (Pl. LXIX), may be specially mentioned. The use of iron wire as a core in the last-named relief and in some other pieces deserves to be noted. The end of a pottery antefixa with Gorgon head, Hu. 013 (Pl. LXIX), closely resembles pieces found at the temple K.K. I of Khara-khoto. Neither the fragments of stucco relievos nor those of decorated hard bricks, Hu. 012 (Pl. L), 014, permit of a definite dating. But their treatment and motifs are quite reconcilable with the assumption that the ruined temple was still occupied in Ming times or possibly even later. A small much-worn Chinese coin which was picked up near the ruin has not yet been identified.

Remains of ruined shrine.

Of the inscription which Hsü Sung saw and reproduced I was unable to obtain any information, either locally or at Jimasa. But some Russian visitors were believed to have removed some sculptured or inscribed stone found at the site. The general impression conveyed to me by a rapid examination of the ruined town was that its much-decayed remains are those of the *Pei-t'ing* of T'ang times. The locality probably continued to be occupied well into the period when both this tract and the Turfān district were under Uigur dominion. The exploitation of the soil must have proceeded ever since the town was abandoned. This and the moisture of the site, where, as the springs in the adjacent depression show, subsoil water is struck at a depth of 15 feet or less, account for the apparent rarity of finds of antiques. This rarity is indicated by the fact that inquiries I made at Hu-p'u-tzŭ produced only three T'ang coins with the legend *K'ai-yüan*, for each of which the ridiculous price of two Taëls was demanded.

Rarity of antiques.

I regret not to have made a close examination of a high and large mound, situated about 1,100 yards outside the western wall face, which appears to have been occupied at one time as a watch-station, and which accordingly is known to the few local Turkī people by the name of 'Karaul'. It has occurred to me since that it might possibly mark the position of that Stūpa of a Western Turk chief from which the town took its appellation 'Kagan-stūpa' previously referred to.[7]

Large mound outside walls.

[7] See above, p. 556.

Plateau extensively cultivated.

On October 21st we set out from Jimasa to cross the range to the south. The route first followed the high road towards Guchen for three miles, and then turned up the scrub and grass-covered alluvial fan over which most of the streams that water the Jimasa tract descend (Map No. 28. C. 1). A wide belt of cultivation was within sight to the east, and after we had reached the hamlet of Chiu-ts'ai-yüan, the low spurs on either side of the route were seen to be terraced into fields cultivated by rainfall only. A narrow defile leading through an outer chain of hills brought us to a wide open plateau stretching up gently towards the foot of the snow-covered range and almost everywhere under cultivation. The total absence of irrigation channels showed that here, on a belt stretching from about 4,500 to 6,000 feet in elevation, rain and snow assured enough moisture for successful agriculture. The farms of the Chinese colonists who have been attracted to this fertile ground are widely scattered over it in small isolated groups. It was only on reaching the far-stretching line of shops and inns at Ch'üan-tzŭ-chieh, where we halted (Fig. 292), that some idea could be gained of the extent and manifest prosperity of this settlement. Everything about the houses, temples, &c., pointed to recent occupation and rapid expansion. The place, which is built almost entirely of timber, serves as the trading centre for a wide stretch of submontane cultivation, dating from the reconquest of the 'New Dominion'. We found its booths and inns thronged with Chinese cultivators, Tungans and Turfān traders.

Nomadic occupation of grazing grounds.

I was interested to observe also among this mixed crowd the fine stalwart figures of Kazaks, the latest arrivals in the neighbourhood. Their flocks and herds were grazing higher up in the valleys that debouch on this table-land between forest-clad slopes in full view from Ch'üan-tzŭ-chieh. I was struck again by the frequency among these Turkī-speaking nomads of fine 'Caucasian' features, such as greyish-blue or neutral coloured eyes and high-ridged or aquiline noses. Their appearance necessarily turned my thoughts to the people who once spoke 'Kuchean', the Indo-European tongue largely preserved in Turfān texts and there designated as *Tukhrī*. We must suppose them to have held in Han times both the Turfān basin and 'Posterior Chü-shih', the tract through which I was just approaching it. We are not likely ever to know how much of so-called 'Aryan' blood had been infused through intercourse with them into the succession of Turkish tribes, such as Huns, Avars, Western Turks, Uigurs, &c., who moved along the northern slopes of the T'ien-shan and temporarily extended their sway over this fertile submontane region. But that some such admixture must have occurred seems evident from the fact that just those portions of the T'ien-shan which comprise such excellent grazing grounds as those to be found between the northern slopes of the Bogdo-ula range and the valleys of Yulduz and Tekes, are bordered on the south by territories where we know that 'Kuchean' or 'Tukhrī' was spoken by the settled population of the oases.

Residence of 'Posterior king of *Chü-shih*'.

I regret that the practical considerations previously indicated would not allow me time to explore the fertile submontane belt, which, from the information received, must be assumed to extend along the foot of the range both to the north-west and south-east of Ch'üan-tzŭ-chieh. There is, I believe, good reason to suppose that we have to look within it for the position for that residence of the 'Posterior king of Chü-shih' which both the Former and Later Han Annals agree in placing in the *Wu-t'u* valley 務塗谷.[8] The *Wei lio* mentions the town of *Yü-lai* 於賴 as the capital of the 'Posterior king of Chü-shih'. But, as M. Chavannes has pointed out, this town may well have been situated in the Wu-t'u valley.[9] We shall see farther on that the Chinese ambassador Wang Yen-tê, when proceeding in A.D. 982 from the 'Anterior Court' of the Kao-ch'ang kingdom or Turfān to the 'Posterior Court', undoubtedly followed the route leading across the Pa-no-p'a

[8] Cf. Chavannes, *T'oung-pao*, 1907, p. 211; also *ibid.*, 1905, p. 558; Wylie, *J. Anthrop. Inst.*, xi, p. 106.

[9] See Chavannes, *T'oung-pao*, 1905, p. 558, note 2.

pass and past Ch'üan-tzŭ-chieh.[10] If there were any reason for thinking that this 'Posterior Court' was then and in earlier periods situated on or near the point where this route debouches from the mountains, we might well look for its site somewhere in the vicinity of Ch'üan-tzŭ-chieh. This locality would have been particularly well suited for the summer residence of a semi-nomadic ruler. But in the absence of any direct indication, this must remain merely conjectural.

OBJECTS EXCAVATED AT RUINED SHRINE OF PEI-T'ING SITE

**Hu. 01. Clay stucco face,** small-featured. Ears and top of head missing. Eyes half open and dreamy; black irises and well-arched eyebrows. Wrinkle under chin emphasized by black line. Flesh light; much discoloured and cracked (prob. from heat). Lips red, divided by black line.

Surface material very fibrous and of fine texture; backing mixed with straw. 5" × 4". Pl. LXIX.

**Hu. 02. Stucco relief group of two fat-tailed sheep,** fighting or playing with each other. Both rear on their hind legs, facing each other, intercrossing their necks, and nuzzling with their noses on each other's shoulders. Legs all lost except one. Legs, tails, ears and horns (both the last missing) had core of iron wire.

Excellently modelled and very realistic; high relief, farther side being unmodelled and concave from end to end. Accidentally burnt. H. of group (with leg) 5¼", gr. width 5¾", gr. relief 1½". Pl. LXIX.

**Hu. 03, 04. Two stucco fingers,** nearly life-size; long nails, conventionally modelled. Discoloured by accidental burning. Length 2¼".

**Hu. 05. Stucco Buddha head.** Hair not modelled but merely massed, showing Uṣṇīṣa; eyes oblique. Well modelled; back missing. Hardened and discoloured by accidental burning. 4" × 2⅜" × 1¾". Pl. LXIX.

**Hu. 06. Stucco drapery.** Lower part of richly draped figure with traces of paint in which discoloured green, white, and blue are visible. Back rough, with large hole in which charred dowel for attachment to background. Discoloured and hardened by accidental burning. Well modelled. 3⅛" × 2¼" × 1¼". Pl. LXIX.

**Hu. 07. Stucco female head,** small-featured. Eyes oblique and closed, head high and backward sloping, egg-shaped. Ears not modelled; traces of dark paint suggest covering represented over head, ears, and front of neck. Small hole at neck for wooden peg. Discoloured by accidental burning. 2¼" × 1⅜" × 1¼". Pl. LXIX.

**Hu. 08. Stucco head of man,** with prominent staring eyes; broad fleshy smiling mouth; broad nose; receding chin; arched eyebrows. Bald head painted black at back, where is rough piece for attachment to background. White, much discoloured, and hard from accidental burning; well modelled. Hole at neck for wooden core. 1⅞" × 1⅜" × 1⅜". Pl. LXIX.

**Hu. 010. Clay pedestal** for small statuette; oblong, rectang., moulded inwards towards middle and expanding again to foot. Traces of scroll and linear decoration in white paint. Two holes in top for fixing object supported. Back smooth, but undecorated. Hard grey clay. H. 2", width 3⅜", depth 1⅞".

**Hu. 011. Stucco relief fr.** Circular eight-petalled flower, applied to flat band of stucco; petals veined down centre, and seed-vessel pitted with dots. Traces of paint. Rough work. Hard grey clay. Burnt. 5" × 2¼" × 1⅜". Pl. L.

**Hu. 012. Moulded brick;** hard, grey, oblong. Face orn. with simple fret pattern in relief between raised borders. 8" × 3½" × 1¾". Pl. L.

**Hu. 013. End of pottery antefixa,** with Gorgon head in relief as K.K. I. i. 01, 012, 013; Chiao. 01, &c. Protruding eyes, furrowed brow and cheeks; under-lip drawn in under teeth. Sand-encrusted. Diam. 3½". Pl. LXIX.

**Hu. 014. Fr. of moulded brick.** Thin slab of hard grey clay, broken each end; projection behind for attachment to some background. Face orn., between raised borders, with plant design in relief; curving stem, and leaves or flower with narrow pointed petals, cf. Chiao. 08, 09, Pl. L. 6⅞" × 7" × ⅞"; gr. depth of projection 2¼".

**Hu. 015. Fr. of stucco relief fig. of woman,** draped. Head, feet, and lower ends of drapery lost. Finely modelled, the upper drapery taking form of cloak which half falls away from shoulders. The stiff upper edge on L. forms a sort of sheath, and is gathered up by arms, which it covers in swelling masses before abdomen.

A swathed infant carried on the R. arm across breast, face outwards; lines of figure of woman suggest fertility. Painted blue with yellow and white borders, but colour and surface damaged by fire. Large hole pierced horizontally in middle of back. Woman's head, Hu. 07, may belong to this. H. 5⅜". Pl. LXIX.

**Hu. 016. Frs. of iron (?) wire;** several lengths doubled, and twisted on themselves, cable-wise. Gr. length 1'.

**Hu. 017. Clay head of woman,** in the round; as Hu. 07. Small-featured, high, backward-sloping; oblique eyes and crooked mouth. Back of head broken off, but preserved. Remains of black paint over head to edge of face, and pink on face; no ears. Stick core. Blackened by accidental burning. H. 1⅞".

[10] See below, p. 582 sq. and n. 6.

## Section III.—ACROSS THE MOUNTAINS TO TURFĀN

Approach to *Pa-no-p'a* valley.

On October 22nd a very enjoyable march in true mountain scenery took us from Ch'üan-tzŭ-chieh far up into the Pa-no-p'a valley. For close on five miles the route ascended a fertile alluvial fan, well cultivated from scattered farms and rich in trees and shrubs. From where the road neared the bed of the stream that descends from the Pa-no-p'a valley, the northern and western slopes of the spurs flanking the latter could be seen to be clad with dense conifer forest. It was curious to notice this distribution of the forest growth, as it contrasted with that observed on the slopes above the Barkul valley, where just the western slopes were bare and the eastern wooded. The explanation is probably to be sought in a difference of climatic conditions between the two ranges. The first of the fir-clad spurs was reached at a distance of seven miles from Ch'üan-tzŭ-chieh (Fig. 299).

Ascent past forest-clad slopes.

From here onwards the track, no longer practicable for carts, wound up and down past steep slopes covered with rich grass or forest. The trees came down to both sides of the tossing mountain stream, which the route from above Lo-t'o-p'u-tzŭ repeatedly crossed, and the scenery assumed a character distinctly reminding me of Kashmīr (Fig. 296). A large valley, known as Pa-no-cha, of which we passed the mouth at an elevation of about 7,000 feet, was seen to descend straight from a conspicuous snowy massif in the south. Up to an elevation of about 9,000 feet it was clothed with dense forest, which looked as if it had never been touched by the axe. The route continued to the south-west over grassy slopes above the left bank of the stream and a mile farther on brought us to the few log huts of Pa-no-p'a, at an elevation of about 7,500 feet.[1] These serve as a resting-place on the north side of the pass.

[1] While halting there for the night I had an interesting opportunity of becoming acquainted with a small party of well-armed outlaws from Kara-khōja of whose presence on this much-frequented mountain route I had already been warned at Jimasa. As their story threw a significant light on the conditions of Chinese administration then prevailing in these parts, a brief record of it may be included here. They were the 'die-hard' remnant of a large party of Kara-khōja cultivators, who having had a long-standing dispute over some lands with neighbours of Astāna (Map No. 28. c. 3) and thinking themselves wronged, had about six months before attacked and killed the Muhammadan 'Jīsa', the local revenue official, whom they believed to have brought about the defeat of their rightful claims. Having thus vindicated the cause of outraged justice in their own way, they took refuge in the mountains, with which Aḥmad Mullah, their leader, was well acquainted as a 'Pāwān' or hunter. They were well armed with Mauser rifles, for since the revolution of 1911–12 it had become easy to purchase arms and ammunition from the Chinese garrison at Turfān, and probably elsewhere, at rates well within the reach of villagers of means.

During their stay south of the mountains they were attacked near Yoghan-terek (Map No. 28. B. 2) by a body of Chinese troops and lost two companions, but succeeded in escaping to ground inaccessible to their pursuers. Since removing themselves to a region outside the Turfān command, the four heroes had remained wholly unmolested. They were now maintaining themselves in comparative comfort at Pa-no-p'a by the receipt of charitable gifts from sympathizing fellow Muslims and of blackmail from other wayfarers.

There was talk of troops being sent from Guchen to capture the little band, but Aḥmad, their leader, an intelligent man, in our long confabulation expressed his confidence of being able to resist any attempt at force in the mountains and his hope of arriving at an understanding with the Turfān Yā-mên which would before long allow them to return in peace to their homes. We parted next morning after a friendly exchange of gifts, his taking the shape of a piece of cloth printed with an auspicious Arabic text in return for a modest amount of silver.

Aḥmad's wish to meet me again during my winter's stay in Turfān was to be realized in a fashion rather different from that he had in mind; for, on returning from Urumchi in the first days of January, I was greeted by his shrivelled black head stuck up on a high pole outside the gate of the Yangi-shahr of Turfān. Chinese diplomacy had managed to create distrust and dissension between Aḥmad and his little band, and when he attempted to bring his followers to reason by driving them first into a cave and then kindling a fire before its entrance, they shot him in self-defence. Chinese justice asserted its claim to the corpse when it was being brought to Kara-khōja for burial, and there was little doubt that the negotiations that were then said to be in progress with the remaining three outlaws would sooner or later satisfy Chinese administrative needs in some similarly effective fashion.

On the following day a long march took us across the watershed of the range and a considerable distance down the valley that gives access to the Turfān basin. A short distance above Pa-no-p'a, the route crosses a side stream coming from a snowy peak in the west about 13,400 feet high and then ascends the very narrow bottom of the main valley to the south-west. The solidity of the bridges which cross the stream in two places seemed to attest the importance attached to the route by the Chinese authorities. At an elevation of about 9,000 feet we gained the grassy slopes of a broad spur descending from a wall-like portion of the range which carried perpetual snow and probably rose to close on 14,000 feet. On the western side of the valley the last of the firs were seen at an elevation only a little above the point where the photograph in Fig. 302 was taken from that spur. About four miles from Pa-no-p'a the route crossed a stream that was evidently fed by considerable snow-beds, and then led up SSW. towards the pass above another stream, which was hard frozen all over at the time. Ascent to *Pa-no-p'a* pass.

From an elevation of about 10,000 feet the ascent lay first over a broad but very steep slope of decomposed slaty rock, overlain by a thin crust of ice. It was the result of fresh snow which the sunshine of the last few days had melted. Then the flat ridge of the pass came into sight, and the track led up to it in zigzags over bare slopes of detritus. We gained the pass after a march of seven miles accomplished in four hours and found its height, as indicated by compensated aneroid record, to be 12,280 feet. The temperature at noon was 30° F. in the sun, and an icy wind was blowing from the south. A boldly serrated ridge (Fig. 300), rising at least a thousand feet higher, overlooks the pass from the west, and apparently carries perpetual snow in its gullies down to an elevation but little above the pass. The view southwards from the pass was very limited, and on the northern side of the range, likewise, no previously intersected point could be recognized. Crossing of watershed.

The descent to the south-south-east lay at first over very steep slopes of detritus. At a distance of about a mile it brought us into a narrow gorge, where a succession of very precipitous rock faces, recalling 'Parris' in side gorges of the Indus valley between Astōr and Gilgit, had to be traversed first on the right and then on the left bank. The bed of the small stream by which this gorge had been carved out was quite impassable in numerous places. Without supporting walls, built up of large boulders and rough slabs, the path leading along the last of these cliffs, at a height of about a hundred feet above the narrow bottom of the gorge, would have been quite impracticable for laden animals, probably even for ponies without loads. The walls supporting this portion of the track looked ancient, and without them the route could never have been used for any but human transport. Below this difficult gorge the valley, still cliff-bound, opened somewhat (Fig. 301). Then, from its junction with another valley coming from the north-west it offered easy progress along its winding bed to the rubble-built hovel which constitutes the roadside station of Hsi-yao-tzŭ. This is the last place where water can be found before reaching San-shan-k'ou, more than ten miles farther down. But, as no grass or straw was obtainable there for the animals, the march had to be continued down the valley. Descent south of pass.

From the point of junction, two miles farther down, of the Āt-oinak-jilga, the valley turned almost due south and became remarkably straight and open at its bottom. But all the more impressive was the contrast presented by the utterly barren slopes of the flanking spurs and the equally bare expanse of the rubble-filled flood-bed at the bottom with the fine meadows and forests that we had passed through on the northern side of the range. The great difference in climatic conditions between the regions comprised in Dzungaria, on the one hand, and the arid basin of Turfān and the vast desert area to the south of it, on the other, could not have been more strikingly illustrated than by this day's passage across the T'ien-shan watershed. Even hardy scrub was scanty in the dry flood-bed that occupied almost the whole bottom of the valley; yet the very width Aridity of valley farther south.

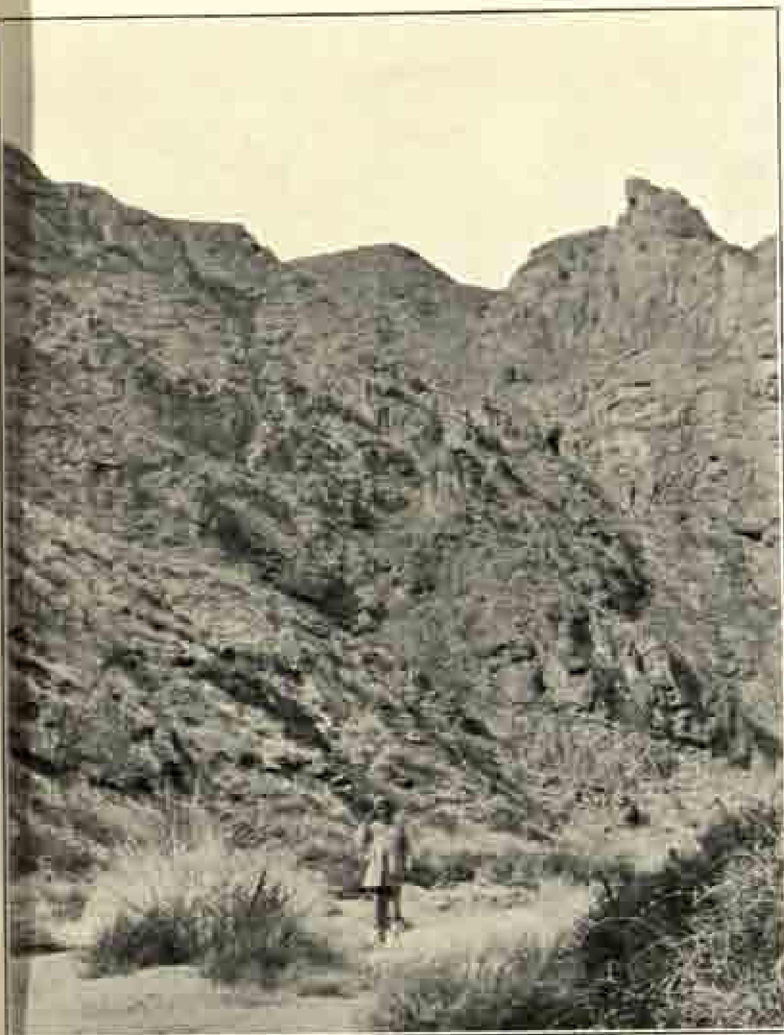
of the bed testified to the great volume of water which, according to the description of the Turfānliks who accompanied us, sweeps down here at the time of the melting of the snows and on the rare occasions when summer rain falls in the mountains. Grazing grounds were said to be found only at the very heads of the valleys draining south from the snows of the watershed; Turfān flocks visit them in the summer months.

March to *Yoghan-terek.* At the entrance of a defile formed by low projecting spurs, we passed the few scattered huts of San-shan-k'ou, near the junction of two narrow side valleys (Map No. 28. B. 2) coming respectively from the north-east and east. Such scanty cultivation as once existed here had been abandoned for several years past, owing to the drying up of the springs in the former of these two valleys. The other valley, called Karlik or Karanghu-jilga, descends, as the map shows, from a great snowy massif in the range, probably its culminating portion east of the Bogdo-ula, and contains a considerable stream. But its water cannot be used here for cultivation as all level ground where it debouches and for some miles lower down is covered with boulders and rubble. Only willows and Toghraks will grow there. After groping our way over this tract in the dusk for close on four miles from San-shan-k'ou, we reached the point where the valley again widens. From here onwards a continuous thicket of willows covers the valley bottom, and the route, in order to avoid it, keeps close under the conglomerate cliffs flanking it on the east. It was quite dark long before we arrived at Yoghan-terek, a group of roadside inns, amidst some fields and arbours at an elevation of about 6,400 feet; we had covered a total of thirty miles during the day.

Abundant drainage of valley. The clear sunlight of the next morning revealed a picture of striking colours. Willow jungle and poplar plantations, clothed in brilliant autumn tints, filled the bottom of a cañon between steep conglomerate cliffs, which rose to close on 300 feet above the lively stream. This by 8 a.m. carried a volume of over 300 cubic feet per second, notwithstanding the advanced season, and two hours later the water had considerably risen. It was easy to believe, as was stated at Yoghan-terek, that during the melting of the snow in early summer and on occasion of rainfall in the mountains, the stream fills its whole rubble bed, over 200 yards wide at this point. Yet, scarcely more than twelve miles farther down, all this water is completely lost where the valley opens on the thirsty gravel Sai which in a mighty hemicycle of barrenness stretches round the whole northern edge of the Turfān basin. Judging from the information I received as to the mouth of the valley, it appears that much of the water brought down to this point, known as Darche, and subsequently lost on the Sai, reappears by subterranean drainage in the springs that feed the 'Yārs' to the west of Yār-khoto, or in the Kārēzes to the south-west of the present Turfān town.

Succession of riverine terraces. Our march on October 24th first took us for six miles down the left bank of the stream. Where we left it and ascended towards an easy flat watershed known as Ishak-dawān, I could clearly make out on the opposite side of the valley four successive river terraces on markedly different levels. They suggested a succession of periods when the volume of the river and its power of erosive action had shrunk more and more, until it carved out for its course the present comparatively narrow cañon. That these periods of gradual shrinkage were related to climatic variations producing fluvial and interfluvial periods can scarcely be doubted. The observation is only made here with a view to suggesting that competent geographical students should on some future occasion examine the numerous other valleys that descend into the Turfān basin from the north.

Descent to *Shaftulluk.* From the saddle of the Ishak-dawān, about 5,200 feet above sea-level, the descent lay down a shallow Wadi-like valley, almost entirely bare of vegetation and flanked by cliffs in which horizontally stratified red clay is overlain by deposits of detritus. We had covered some seven miles from the saddle before a patch of tamarisks and reeds gave the first indication of the presence of subsoil water. About a mile farther on, we passed a small clay terrace covered with Muhammadan tombs, and then



295. GORGE IN UMUR-TĀGH, EASTERNMOST T'IEN-SHAN, ABOVE BAI.



296. ASCENT IN PA-NO-T'A VALLEY ABOVE LO-T'O-P'U TZŬ, T'IEN-SHAN.



297. MR. LI SHU-JUNG, DISTRICT MAGISTRATE OF BARKUL.



298. P'AN TA-JÊN WITH HIS TWO SONS, AT URUMCHI.



299. FOREST-CLAD NORTHERN SLOPES OF T'IEN-SHAN ABOVE CH'AN-TZŬ-CHIEH.



300. VIEW TO SOUTH FROM PA-NO-P'A PASS, T'IEN-SHAN.



301. VIEW DOWN VALLEY FROM ABOUT TWO MILES SOUTH OF PA-NO-P'A PASS, T'IEN-SHAN.



302. VIEW DOWN VALLEY FROM ABOUT THREE MILES SOUTH OF PA-NO-P'A, T'IEN-SHAN.

dropped down into a hollow containing the charming little oasis of Shaftulluk, which stands at an elevation of close on 3,000 feet. Its luxuriant orchards and arbours are watered by a lively spring rising about 200 yards higher up. The still green foliage of the fruit trees was delightful to behold after the barren scenery through which we had passed since we crossed the range. No wonder that a Ziārat and mosque rose close to the life-giving spring, evidently to mark local worship of ancient date.

March to edge of Turfān cultivation.

Next day an easy march of nineteen miles across a steadily descending Sai, first of stone and then of gravel, brought us down to the northern edge of the main Turfān oasis. The monotony was relieved only where the route skirted a portion of the shallow Wadi where the water of Shaftulluk, after flowing for about three miles below the surface, breaks out again in a little brook and irrigates in succession three tiny patches of cultivation known as Kīchik. After a march of about nine miles, we crossed a wide dry flood-bed coming from the outer hills. It is joined by several smaller Wadis farther on and carries occasional drainage towards the deep-cut 'Yār' bed which passes to the east of the ruined site of Yār-khoto.

View across Turfān basin.

The view obtained on our descent of this big gravel glacis was exceptionally wide and clear. It extended from the snowy peaks of the watershed range right across the dark stretches of Turfān cultivation to the long white belt of salt-encrusted ground marking the lowest part of the Turfān depression. In the far distance, the desert hills of the Chöl-tāgh, forming the southern rim of the basin, came into view in dim outlines. As the ground sloped so uniformly, it was difficult to realize that the lowest portion of this vast vista lay close on four thousand feet below the point of departure of our march from Shaftulluk. The first strings of Kārēz wells, those characteristic features of Turfān cultivation, were passed on the bare gravel Sai two miles before we reached the edge of the cultivated area, as sharply marked off here as elsewhere around Turfān. A couple of miles more, past open canals and fields that appeared to have been recently brought under cultivation, brought us to the village tract of Yār-mahalla, where we were hospitably received in the comfortable home of Iḥrār Khān, the Nōgai owner of a cotton press and late Russian Aḳ-sakāl.

Itinerary from Yār-khoto to Pei-t'ing.

It only remains for us now to compare the results of our actual survey of the route we have followed from the ancient site north of Jimasa to Turfān, with what the previously mentioned itinerary of the T'ang Annals tells us of the journey from Chiao-ho or Yār-khoto to Pei-t'ing. The passage in Chapter XL of the *T'ang shu*, according to M. Chavannes' rendering, runs as follows:[1a] 'Starting from the sub-prefecture [of *Chiao-ho* 交 河], if one moves northward for 80 *li*, one arrives at the hostelry of *Lung-ch'üan* 龍 泉, "the Dragon Spring". Farther to the north, one enters a mountain gorge and passing through *Liu-ku* 柳 谷, "the Valley of the Willows", crosses the [mountain called] *Chin-sha ling* 金 沙 嶺, "the Mountain of the Golden Sand", at the end of 130 *li*. Passing through the Chinese frontier post of *Shih-hui* 石 會 one arrives at the town of the Protectorate of Pei-t'ing 北 庭, at the end of 160 *li*.'

Hostelry of 'Dragon Spring' located.

That *Chiao-ho*, the ancient capital of Turfān, literally '[the town] between the [two] rivers', is identical with the ruined site of Yār-khoto, 'the town between the Yārs', is subject to no doubt. Leading thence to the north-north-west the present route towards Jimasa and Guchen brings us Shaftulluk after a march of approximately 18 miles. This 'Langar' with its fine spring is undoubtedly the best halting-place for the traveller who crosses the barren glacis of the mountains towards the valley that gives the most direct access to the watershed northward. Accordingly we may quite safely place there the 'hostelry of *Lung-ch'üan*', 'the Dragon Spring', and recognize in its name an appropriate Chinese designation for the life-giving fountain in the midst of a stony wilderness. Chinese fancy has always been as prone to associate striking natural features with the celestial monsters as Indian imagination is to recognize works of Śiva, &c., in Svayaṁbhū

[1a] See *Turcs occid.*, p. 11.

Tirthas. The distance of 80 *li* is easily reconciled with the approximate equivalence of about four *li* to the mile which results from the comparison of certain other distances recorded in itineraries of the *T'ang shu* between definitely identified localities in Chinese Turkestān.[2]

'Valley of the Willows', *Liu-ku.*

From the 'spring of the Dragon' the itinerary takes us into a mountain gorge and then through *Liu-ku*, 'the Valley of the Willows', to the pass crossing the *Chin-sha ling*, 'the Mountain of the Golden Sand'. Reference to the account given above of our route will make it clear that the mountain gorge here referred to is the cañon which the present route from Shaftulluk enters below Yoghan-terek. It is equally clear that *Liu-ku*, 'the Valley of the Willows', derived its designation from the thickets of willows that skirt the route for miles in the valley portion extending above Yoghan-terek towards San-shan-k'ou. By the *Chin-sha ling*, 'the Mountain of the Golden Sand', only the watershed range of the T'ien-shan can be meant, and by the place of crossing, the pass between Hsi-yao-tzŭ and Pa-no-p'a.

Location of *Chin-sha ling.*

If we assume that the distance of 130 *li* is meant to refer to the marches from Shaftulluk to Hsi-yao-tzŭ, the place where travellers coming from the south are accustomed to halt before ascending the pass next morning, and the last place where water and fuel are obtainable, the estimate given by the itinerary may be considered a reasonably close approximation to the actual distance, which is about 35 miles. The above assumption seems justified in view of the fact that the distances in T'ang itineraries, like those in corresponding classical texts, being derived from records made for the practical guidance of travellers, are always measured between customary halting-places and are not intended to serve for the location of natural features. For travellers of old times, whether from the east or the west, it was far more important to know the distance to the last stage below a pass than that to the watershed of the range, a place which they would be only too glad to pass and forget as quickly as possible. I am unable to suggest whence the name of *Chin-sha ling*, 'the Mountain of the Golden Sand', as applied to this portion of the T'ien-shan range between Turfān and Guchen, was derived. But there can be little doubt that we have in the *Hou Han shu* a reference to a similar name for the mountain. In the biography of Pan Yung we are told that in A.D. 126 the northern *shan-yü* of the Huns invaded with ten thousand horsemen the territory of Posterior Chü-shih and arrived in the valley of *Chin-chü* 金且 before a Chinese force sent by Pan Yung obliged him to retreat.[3]

Earlier notices of *Liu-ku.*

The name of 'the Valley of the Willows' can be traced even farther back; for it is already found, in the form of *Chü-shih Liu-ku*, 'the Willow Valley of Chü-shih', in the *Notes on the Western Regions*, contained in the Former Han Annals. The notices in that text relating to the petty territories around Anterior and Posterior Chü-shih state of the 'Kingdom of Hu-hu' that it is 'in the Chü-shih-liu valley'.[4] The very small population that this notice attributes to this 'kingdom', viz. 55 families numbering 264 persons, fully agrees with the supposition that the reference is to a petty chiefship, comprising the valley drained by the Yoghan-terek river, perhaps with some other adjacent valleys south of T'ien-shan. Mr. Wylie in his note on this passage pointed out that the same territory is alluded to also in the itinerary of the Chinese envoy Wang Yen-tê, who in A.D. 982, after 'passing through the government of Chiao-ho' or Turfān, 'traversed the Valley of Willows, made the passage of the *Chin ling* mountain, and reached the Uigur capital'.[5] Here we meet with what is evidently an abbreviated form of the name *Chin-sha ling* for the moun-

[2] Cf. e.g. the distance of 120 *li* between Shih-ch'êng (Charkhlik) and Hsin-ch'êng (Vāsh-shahri), on the route from Sha-chou to Khotan, and of 220 *li* between T'ien-shan (Toksun) and Yin-shan (Kumush), on the Turfān–Kara-shahr route, as discussed in *Serindia*, i. p. 306; iii. pp. 1177 sq.; see also below, Chap. XXIV, sec. ii, iii.

[3] See Chavannes, *T'oung-pao*, 1906, p. 253; *Dix Inscriptions*, p. 22.

[4] See Wylie, *J. Anthrop. Inst.*, xi. pp. 104 sq.

[5] Quoted by Wylie, *loc. cit.*, from Julien, *Mélanges de géographie asiatique*, p. 11.

tain range, and find definite evidence that in Uigur times, also, the direct route connecting Turfān with Pei-t'ing led up the valley above Yoghan-terek and across the Pa-no-p'a pass.

It is equally easy to recognize the correctness of what the T'ang itinerary tells us of the remaining section of the route between the *Chin-sha ling* and the town of the Protectorate of *Pei-t'ing*. It is true that we have no means of definitely locating the 'frontier post of *Shih-hui*', though topographical reasons point to its having probably stood somewhere near Ch'üan-tzŭ-chieh or the mouth of the Pa-no-p'a valley. But the 160 *li* recorded by the itinerary as the distance between 'the Mountain of the Golden Sand' and Pei-t'ing agrees closely enough with the actual road distance of 45 miles shown by our traverse reckoning, assuming that it is measured from Hsi-yao-tzŭ and by the direct line connecting the route below Ch'üan-tzŭ-chieh with the ruined site near Hu-p'u-tzŭ.[6] 'Frontier post of *Shih-hui*.'

It only remains for me to point out that the total of 370 *li* indicated by the T'ang itinerary as the distance from Chiao-ho or Yār-khoto to Pei-t'ing indirectly helps to make it appear highly probable that the route via Yoghan-terek and Pa-no-p'a was already in Han times that regularly followed between Anterior and Posterior Chü-shih. In the Later Han Annals we are told that 'going from the retrenched camp of *Kao-ch'ang* 高昌壁 northward one reaches after 500 *li* the town of *Chin-man* 金滿 of the Posterior tribe. These two localities are the gates of the Western countries.'[7] Now 'the retrenched camp of Kao-ch'ang' can with certainty be located at the present Kara-khōja.[8] The distance from this to Yār-khoto or Chiao-ho is fully twenty-six miles as measured on the map (No. 28. B, C. 3) and by road may safely be put at thirty. Chiao-ho or Yār-khoto lies quite close to the direct line connecting Kara-khōja with the route leading to Shaftulluk, Yoghan-terek, &c., and from all that we know of Chinese itineraries in the Western countries it appears most probable that the road distance recorded by the Later Han Annals was obtained by first reckoning the distance from Kao-ch'ang to the political capital at Yār-khoto and then adding to it that from the latter to Chin-man. The position of Chin-man is definitely proved to have been the same as that of Pei-t'ing.[9] Hence we are justified in adding the 120 *li*—which, at the above-mentioned rate of four *li* to one mile, correspond to 30 miles—to the 370 *li* reckoned between Chiao-ho and Pei-t'ing. The resulting total of 490 *li* is practically the same as the rough figure of 500 *li* which the above-quoted passage of the Later Han Annals names as the distance between Kao-ch'ang and Chin-man. Han record of distance from *Kao-ch'ang* to *Chin-man*.

[6] I mean the nearest route that a traveller now bound for the site would follow. He would descend first via Pa-no-p'a and Ch'üan-tzŭ-chieh to the Guchen–Urumchi high road and thence move straight towards Hu-p'u-tzŭ without touching Jimasa.

[7] See Chavannes, *T'oung-pao*, 1907, p. 169.

[8] See below, p. 571.

[9] See Chavannes, *Turcs occid.*, p. 11; above, p. 555.

# CHAPTER XVII

## THE TURFĀN TERRITORY: SOME ASPECTS OF ITS GEOGRAPHY AND HISTORY

### Section I.—THE GEOGRAPHICAL POSITION OF TURFĀN AND THE EARLIEST HISTORICAL NOTICES

My arrival, on October 25th, 1914, close to the town of Turfān marked the beginning of the season that I proposed to devote to archaeological and geographical labours in the Turfān basin. The extent and variety of the interests presented by this region both to the antiquarian and geographical student are so great that the time, just over three months, which I was able to spend there would certainly have appeared altogether inadequate if a systematic survey of all its ancient remains and its physical features had been called for. In neither direction was there room or need for so wide a programme.

Abundance of ancient remains.

As regards the ancient remains of the Turfān basin, Dr. Klementz's reconnaissance visit, carried out in 1897 under the auspices of the Russian Academy of Sciences, first showed not only how great was the number of pre-Muhammadan ruins but also how easy they were of access; since then the search among them for antiques had proceeded for a considerable number of years and on an extensive scale. Between the years 1902 and 1907 fully equipped parties of German archaeologists under the leadership of such distinguished scholars as Professors A. Grünwedel and Von Lecoq had been at work at Turfān sites for periods nearly ten times as long in the aggregate as that which I was able to devote to this area. Their extensive operations, rewarded by rich results, and also the facilities for the ready sale of antiques offered by the vicinity of Urumchi and by the position on a great trade route, had stimulated the ruthless exploitation of the ruins by the local population. Much destruction had been caused for a long time past through the constant digging for manuring earth among the ruins of the ancient capitals, Yār-khoto and Kara-khōja, and this process was being accelerated by the increasing extent of cultivation around those two important sites. Mr. Tachibana, the Japanese traveller, too, had spent several months for archaeological purposes in the Turfān district in 1910 and again in 1911. Hence it was clear to me from the start that it would be necessary, as an essential preliminary to useful work, to ascertain by reconnaissances which sites were still comparatively undisturbed or contained remains, such as wall-paintings, that deserved to be saved from further risks by careful removal.

Detailed survey of Turfān depression.

The reconnaissances were also to familiarize me with the typical features of the Turfān depression, and thus to enable me to direct and check more closely that detailed survey of its topography which the geographical interest attaching to it made me anxious to secure. This survey, on the comparatively large scale of one inch to the mile, was to be carried out by Surveyor Muhammad Yāqūb; he had been carrying a plane-table traverse across the waterless desert between the terminal basin of the Hāmi drainage and the eastern border of the Turfān district, and I expected him shortly to rejoin me. The experience I had gained in the course of previous travel of the young surveyor's qualifications made me wish to keep within easy reach of him in order to exercise supervision and control.

R. B. Lāl Singh, with his much greater experience and energy, could be trusted to make the fullest use of such opportunities for fresh surveys on unexplored or as yet very imperfectly

known ground as his allotted programme of work in the Kuruk-tāgh would provide. This included triangulation over a great stretch of ground, almost all waterless, and an effort to connect the resulting net of triangles with the previous triangulation work carried along the K'un-lun range. Turfān would necessarily have to serve as the base for his needs in the matter of transport, supplies and guides. The experience of the preceding winter made me feel uncertain as to the future attitude of the Chinese authorities of Hsin-chiang in the matter of our survey operations. This, together with the total absence of local resources in the Kuruk-tāgh, made it all the more important to make sure of this safe base by remaining myself at work in the Turfān district until the latter part of the winter. By so planning Lāl Singh's work as to bring him back there to rest and refit by the end of January I hoped also to secure due co-ordination between his labours and those explorations in the Lop Desert and along the western Kuruk-tāgh, which I desired to carry out partly in person and partly through Afrāz-gul during February and March.

Programme for Lāl Singh's surveys.

Having thus indicated the objects that my stay in the Turfān district was intended to serve, I may briefly explain how much of the work actually accomplished can be dealt with in these chapters. The geographical interest attaching to the Turfān basin and the detailed survey of its topography prompted by it were bound to claim much of my time and attention. The results yielded by this portion of our work help in many ways to throw light on the historical past of Turfān. Yet several reasons make it advisable to reserve their treatment for another place. In order to bring out in adequate detail those geographical features which give to the Turfān district, and particularly to its inhabited portion, a strongly distinctive character, cartographical representation of its topography on a larger scale than that of the maps attached to this publication is essential. Arrangements have therefore been made, with the kind help of the Geodetic Branch of the Survey of India, Dehra Dun, for the preparation of a special map of the Turfān depression on the scale of 1 : 250,000 from the materials secured by our surveys, for publication in the *Geographical Journal*. The drawing of this map, based mainly on the survey of one mile to the inch, is still in progress, and for the paper intended to accompany this map the exposition of the geographical observations concerning the Turfān area may appropriately be reserved.

Geography of Turfān basin.

I feel bound also to restrict the record here presented of my archaeological labours. In order to treat the finds and observations thereon in their proper antiquarian and historical setting, it would be necessary to devote detailed study not merely to all notices bearing upon the pre-Muhammadan history of Turfān but also to the great mass of valuable materials in the shape of art and manuscript remains brought to light by previous explorations. These strikingly illustrate the remarkably varied relations with west and east of which Turfān was for centuries the centre. The greater part of these materials have been deposited in the Ethnographic Museum of Berlin, and their publication and study have for the last twenty years been carried on by a series of competent experts.[1] But these very valuable labours are still far from being completed, and of other materials widely scattered elsewhere our knowledge is still more imperfect. For a close examination of even those already rendered accessible I lack adequate leisure and opportunities. I shall therefore make no attempt to discuss my own limited observations and finds with a view to elucidating the very divers aspects of the ethnography, culture, &c., of old Turfān, especially in the later phases of its pre-Muhammadan history. I shall content myself with a plain record of the facts observed by me on the spot and of the data that direct examination of our finds supplies.

Restriction of archaeological record.

[1] See A. Grünwedel, *Bericht über archäologische Arbeiten in Idikutschari und Umgebung*, München, 1906; *Altbuddhistische Kultstätten in Chinesisch-Turkistan*, Berlin, 1912, pp. 211–16, 223–340; A. von Lecoq, *Chotscho*, 1913; *Die buddhistische Spätantike in Mittelasien*, 1922–24. Also numerous articles by Professors Franke, von Lecoq, Lüders, F. W. K. Müller, Sieg, Siegling, &c., in the *Abhandlungen* and *Sitzungsberichte* of the Prussian Academy of Sciences, Berlin, and elsewhere.

Synopsis of historical data.

I shall only depart from this course for the purpose of a rapid synopsis of such definite historical data of importance concerning Turfān as Chinese records furnish for those limited periods when the territory was under Chinese political control in Han and T'ang times. These data have necessarily the closest bearing upon the interpretation of all archaeological observations in that region. They themselves evidently require to be considered in the light of the geographical conditions affecting that territory. I am not aware that any such review of the Chinese historical notices regarding Turfān has hitherto been furnished by those fellow scholars whom their archaeological work has made familiar with the ground. I may accordingly prefix it here to the account of my antiquarian observations on the afore-mentioned reconnaissances, and of the results which attended our excavations at particular sites such as Toyuk, Murtuk, Astāna.

*Chü-shih* in Former Han Annals.

The notices which the *Ch'ien Han shu* in Chapter XCVI devotes to the several territories comprised under the general designation of *Chü-shih* 車師 are regrettably brief as regards the geographical limits and character of these territories. But they at least make it quite clear that 'the kingdom of Anterior Chü-shih' during Former Han times must have comprised most, if not the whole, of the Turfān basin proper. In their historical portion, however, these notices are somewhat more ample and bring out two essential facts: on the one hand the close interrelation of these territories whether situated to the south or to the north of the T'ien-shan, and on the other the strong influence to which they were exposed throughout that period from their nomadic neighbours on the north, the Huns. Both these facts are also reflected in the later history of this region and find their full explanation in clearly recognizable geographical factors, which deserve to be noted here at once.

Interdependence of Turfān and 'Posterior Chü-shih'.

The close interdependence of the territories on both sides of the mountain range is a necessary economic result of the fact that, owing to a striking difference of climatic conditions, they naturally complement each other in respect of their products. The adequate moisture available north of the portion of the T'ien-shan dividing Posterior from Anterior Chü-shih makes that area, as we have seen, not only capable of producing an abundance of cereals without irrigation, but also provides it with plentiful pastures, to be found in the mountain valleys during the summer months and on the lower slopes and in the plains farther north during the winter. In consequence, there is a considerable excess of essential food-stuffs, both as regards cereals and live stock, available for the population of the oases in the south. There, within a small but potentially most fertile area, wholly different climatic conditions prevail. Owing to the fact that the greater portion of the cultivable ground in the Turfān basin descends well below sea-level, the climate of that area, though situated near the 43rd degree of latitude and in the close vicinity of a high snowy range, is for eight or nine months in the year so warm as to allow two crops to be grown yearly on soil that is thoroughly well manured, and cotton as well as fruit of all kinds to be produced in abundance and of excellent quality. Irrigation, however, is an absolute necessity throughout the area, and consequently the Turfān depression could never tempt any but settlers accustomed by tradition to a system of intensive cultivation by canals. On the other hand, the climatic conditions and the want of suitable pastures wholly preclude a pastoral mode of life.

Kārēz irrigation in Turfān basin.

The exceptional fertility of the district, when cultivated under such a system, is best proved by the fact that there alone in Chinese Turkestān we now find the use of Kārēzes or underground canals extensively established. It is worked with an expenditure of money and labour which would never be thought of in any other oasis of the 'New Dominion', and is justified only by the profit derived from such a valuable and easily exported produce as cotton. The development of Kārēz irrigation in the Turfān area is of comparatively recent date, and its introduction certainly

does not reach back farther than the eighteenth century.[2] But that the district possessed a dense population, wealth, and corresponding economic importance in much earlier periods also, is abundantly proved by the large number, size, and elaborate character of its ruins as well as by its recorded history. Irrigation must have been all through historical times indispensable to cultivation within the Turfān area. We are therefore driven to the conclusion that the water-supply brought down in streams from the mountains was more plentiful in ancient times than it is now, when subterranean drainage has to be tapped by Kārēzes in order to supplement it in a proportion which at present is probably close on one-half of the total available supply. But the clear proof of reduced water-supply that this fact affords, though it has its antiquarian bearing, can only be mentioned here incidentally.[2a]

Communications between Turfān and Guchen.

The juxtaposition of two territories so different in climate and produce could not have resulted in that close economic relation which still exists at present between the Turfān oases and the Guchen tract nor in that political connexion which our records attest in older times between Anterior and Posterior Chü-shih, between Kao-ch'ang and Pei-t'ing, had not the mountain range dividing them afforded, in spite of its height, easy access from the one to the other. The most direct route linking the chief places of the two territories has already been described in the preceding chapter. To the east of it the range can be crossed by two more passes, the Sardak and Kara-dawān, which, though said to be unsuited for laden animals, yet offer means of rapid intercourse for mounted men all the year round. Still farther to the east the range sinks down low enough, at the saddle of the Ku-ch'üan (Map No. 31. B. 1, 2), to permit traffic between the eastern extremities of the cultivated areas in the two territories to be carried on by camels or carts without too great a detour. Finally in the west the flank of the high Bogdo-ula massif can be turned by the still easier saddle near Ta-fan-ch'êng, which the high road to Urumchi crosses at an elevation of only about 3,500 feet, and Jimasa can thus be reached in about eleven marches.

Common political fate of both territories.

It is evident that if these several lines of communication greatly facilitated economic and probably also ethnic intercourse between the two territories north and south of the snowy range, they must have also helped greatly to render them equally accessible to military aggression and political influence, whether it came from the north or the south. And this result of a geographical factor explains why we find the territories corresponding to Anterior and Posterior Chü-shih so closely linked in political fate and in the vicissitudes of war, throughout the successive periods for which the Chinese records furnish exact historical data. The community of fortune thus created is fully illustrated by what the Annals of the Former Han tell us of the part played by cis- and transmontane Chü-shih, between the Huns on the north and the Chinese power on the south, during the century and a quarter preceding the downfall of that dynasty.

Anterior *Chü-shih* in Former Han Annals.

Before noting the essential points of this story, as recorded in the *Ch'ien Han shu*, it only remains to quote the description given therein of Anterior Chü-shih. Regrettably brief as it is, it definitely settles the location of the capital. 'The capital of the kingdom of Anterior Chü-shih is the city of *Chiao-ho* 交河. The waters of the river there divide and flow round the city walls; hence the name *Chiao-ho* ("interlacing river"). The city is distant from Ch'ang-an (the present Hsi-an-fu) 8150 *li*. The kingdom contains 700 families, comprising a population of 6,050 persons.

[2] Regarding the Kārēz cultivation of Turfān and its introduction, cf. the remarks of Prof. E. Huntington, based on careful observation, *Pulse of Asia*, pp. 310 sqq.

The total absence in Chinese historical notices relating to Turfān of any reference to so striking a feature as the use of Kārēzes may safely be considered clear evidence that this method of cultivation was not known there down to T'ang times and even later. It is very difficult to believe that the detailed and exact description of the territory of Kao-ch'ang in the *T'ang shu*, which duly mentions the two annual crops and the cultivation of cotton there, could have passed over the Kārēz system if it had then existed.

[[2a] On this geographically important point, cf. my remarks, *G. J.*, 1925, June, pp. 487 sqq.]

The army numbers 1865.'[3] Then follow the usual enumeration of a series of local officers, all bearing high-sounding titles, and indications of the distances from the seat of the Chinese Governor-General (*Wu-lei*, at present Yangi-hissār or Chādir) and *Yen-ch'i* (Kara-shahr), 1810 and 835 *li* respectively. With the latter we need not concern ourselves, as the account given of the position of the capital places it beyond all doubt at the site of Yār-khoto, five miles to the north-west of the Kōna-shahr of Turfān, as was long ago recognized by Chinese and Western scholars alike. Nor need the figures given of the population detain us, beyond the observation that they closely approach the corresponding numbers mentioned for Ulterior Chü-shih (595 families, 4,774 persons, 1,890 soldiers), but remain greatly below those recorded for the great oases of the Tārīm basin, such as Ch'iu-tzŭ (Kuchā), So-chê (Yārkand) and Yü-t'ien (Khotan).[4]

Hun operations based on Turfān.

Of the rôle that Turfān played in the struggle between the Han and the Huns at the time of the Chinese advance into the Tārīm basin, there is significant evidence in the very first mention of the territory traceable in translated portions of *Ch'ien Han shu* and Ssŭ-ma Ch'ien's *Shih chi*. We are told that the missions passing between the Emperor Wu-ti and the 'Western countries', after regular intercourse had first been opened, were repeatedly attacked and robbed by the people of Lou-lan and Ku-shih, who 'on various occasions acted as eyes and ears to the Hsiung-nu, causing their troops to intercept the Chinese envoys'.[5] That *Ku-shih* 姑師 is but another form of the name *Chü-shih* 車師 may be considered as certain.[6] A Chinese expedition was thereupon dispatched in 108 B.C., when its leader the general Chao P'o-nu, at the head of some seven hundred light cavalry, 'captured the king of Lou-lan and defeated Ku-shih'.[7] The interest for us of this record lies in the clear indication it affords that Turfān served at that time as a base for Hun raids upon the newly opened Chinese route leading into the Tārīm basin through Lou-lan. It also proves that the Chinese counter-operations were conducted against 'Ku-shih' from the south across the Kuruk-tāgh.[8]

Chinese attacks upon *Chü-shih*, 89-67 B.C.

That the Hsiung-nu, even after that defeat, retained their hold upon Chü-shih is proved by the mention of an unsuccessful expedition which, with the help of Lou-lan troops, was sent in 99 B.C. against that territory.[9] The expedition had evidently been planned in support of bigger but equally unsuccessful operations against the Huns which the Chinese in the same year attempted from Chiu-ch'üan or Su-chou in the direction of the eastern T'ien-shan.[10] It was with an exactly

[3] See Wylie, *J. Anthrop. Inst.*, xi. pp. 105 sq. The first portion of the passage is repeated in the notice of the *Hou Han shu*, from the translation of which by M. Chavannes, *T'oung-pao*, 1907, pp. 210 sq., the above rendering has been slightly modified.

[4] Here it may be noted that we have no means for locating the two small subdivisions of the Turfān region which the 'Notes on the Western Regions', *Ch'ien Han shu*, chap. xcvi (Wylie, *J. Anthrop. Inst.*, xi. p. 106), mentions under the designations of 'Chü-shih Protectorate-general' and 'Ulterior Chü-shih Presidency'. No bearings or distances are recorded.

The identifications with localities about 'P'i-chan' quoted by Wylie from a modern Chinese treatise are obviously guesswork. The numbers of families recorded suffice to show the insignificance of the detached oases probably intended. The same applies also to the petty 'kingdom of Chieh in the Tan-ch'ü valley on the eastern side of the T'ien-shan' (see Wylie, *loc. cit.*, p. 104), which the same treatise similarly locates about P'i-chan.

[5] See Wylie, *J. Anthrop. Inst.*, x. p. 25. The passage is evidently based on a corresponding record in Ssŭ-ma Ch'ien's *Shih chi*, chap. cxxiii; see Hirth, 'The Story of Chang Kién', *J.A.O.S.*, xxxvii. p. 106.

[6] See *Serindia*, i. p. 336.

[7] Cf. Hirth, *J.A.O.S.*, xxxvii. p. 106.

[8] See *Serindia*, i. p. 338.

[9] See Wylie, *J. Anthrop. Inst.*, xi. p. 106.

[10] Cf. De Groot, *Hunnen der vorchristlichen Zeit*, p. 162.

The repeated Chinese efforts against Chü-shih in combination with expeditions towards the easternmost T'ien-shan suggest an early Chinese endeavour to wrest from the Huns the command of the routes leading to the 'Western regions' through Hāmi and Turfān-Guchen. It would have secured a physically easier line of communication with the Tārīm basin than that through the Lop Desert. This aim, however, was not realized until the opening of the 'new northern route' about a century later, and even then only partially; see *Serindia*, ii. pp. 705 sqq.

corresponding design that in 89 B.C. a force, composed of troops from Lou-lan, Wei-hsü (Korla), Wei-li (Konche-Tikenlik) and other feudatory states,[10a] was sent under Chinese leadership against Chü-shih, in order to create a diversion in support of operations undertaken from the side of the Su-chou marches against the Huns on the T'ien-shan.[11] The king of Chü-shih was besieged and surrendered, but no permanent submission of the territory ensued; for towards the close of the Emperor Chao-ti's reign (86–74 B.C.) we are told that Chü-shih had allied itself with the Huns, who sent there a cavalry force to form a colony. Though this Hun force retired when a Chinese army in 73 B.C. prepared to attack Chü-shih, the relations of its chief with the dangerous neighbours in the north continued for some years longer, threatening to cut off the Chinese from their allies, the great Wu-sun tribe north of the T'ien-shan.[12] In 68 B.C., however, a vigorous effort was made from the newly formed Chinese military encampment at Ch'ü-li, on the Tārīm, with the help of auxiliaries from the feudatory states of the Tārīm basin, and this, after the capture of Chiao-ho (Yār-khoto) in the same year, led to the submission of the king of Chü-shih in 67 B.C. A fresh threat from the side of the Huns was met by a strengthening of the Chinese forces, and finally, after the king, whom the Huns supported, had retreated eastwards with a portion of his people, a Chinese military colony was established in the territory.[13] The Chinese general Chêng Chi 鄭吉, to whose energy and powers of organization these successes had been due, completed in 60 B.C. his work of consolidation, having been appointed the first 'Protector-General' and placed in charge also of the 'northern road' west of Chü-shih.[14]

Chinese control of *Chü-shih* established.

From the time when Chü-shih was permanently secured by the establishment of a Chinese garrison, down to the first decade of the first century A.D., Chinese political control over the Turfān region appears to have been maintained uninterruptedly. It is during this period of seventy years of continuous occupation by imperial troops that Turfān may be supposed to have first received that strong impregnation with elements of Chinese civilization which, strengthened by similar later periods of close political dependence, persists to the present day and markedly distinguishes its people from those of the western oases of the Tārīm basin. The importance that Chinese policy attached at that time to Chü-shih, evidently as a kind of bastion securing the Tārīm basin against the danger of Hun aggression from the north-east, is indicated by the establishment there in 48 B.C. of the special post of military commandant known as *Wu-chi-hsiao-wei* 戊已校尉, an appointment of consequence revived in Later Han times.[15] He had his residence in Anterior Chü-shih at the fortified camp of *Kao-ch'ang* 高昌壁, the present Kara-khōja.[16]

Defection of king of Posterior *Chü-shih*.

In the Yüan-shih period, A.D. 1–5, the Wu-chi-hsiao-wei Hsü P'u-yü opened the 'new northern route' repeatedly referred to in earlier chapters, which greatly shortened the journey from the Jade Gate in the Tun-huang Limes to Posterior Chü-shih.[17] It was evidently meant to bring that territory within easier reach of the Chinese base and hence into closer dependence. From

[10a] For *Wei-hsü* and *Wei-li*, cf. *Serindia*, iii. pp. 1230 sq.

[11] See Wylie, *J. Anthrop. Inst.*, xi. pp. 106 sq.; De Groot, *Hunnen*, pp. 178 sq.

[12] See Wylie, *ibid.*, xi. p. 107; De Groot, *ibid.*, pp. 193, 198.

[13] These events are related at some length in the notice on Chü-shih, as translated by Wylie, *ibid.*, xi. pp. 107 sqq. The locality of this military colony is not stated. For a short but clearer record of the essential facts, see De Groot, *ibid.*, p. 202.

[14] Cf. De Groot, *ibid.*, pp. 205 sq. But see also Chavannes, *T'oung-pao*, 1907, p. 154, note 1, where the origin of the title and its relation to the protection of the 'northern road' west of Chü-shih (Turfān) are brought out more clearly.

[15] Regarding the title *Wu-chi-hsiao-wei* and its supposed origin, cf. Chavannes, *T'oung-pao*, 1907, p. 154, note 2. If it really was derived from two separate functions, it seems at any rate clear that at Chü-shih there was never more than one officer holding that title at one time.

[16] See Chavannes, *ibid.*, 1907, p. 155, note 1. The place of this military colony is not stated in the Han Annals. For its location at Kao-ch'ang, originally called T'ien-ti, first mentioned by a late authority, cf. Franke, *Chinesische Tempelinschrift aus Idikutšahri*, p. 31.

[17] See above, pp. 542 sq., 552; *Serindia*, ii. pp. 705 sqq.; Chavannes, *T'oung-pao*, 1905, p. 533.

this arose complications which the *Ch'ien Han shu* recounts at length. 'Ku-kou, the king of Ulterior Chü-shih, however, believing that the road might prove a check to his movements, looked upon it as an inconvenience. His territory joined that of the Hsiung-nu general of the south.'[18] Unwilling to accept the boundary arrangement laid down by the Wu-chi-hsiao-wei, the Chü-shih chief decamped with his people and went over to the Huns. This move, which ultimately led to his undoing, seems a distinct indication that a part at least of the population then occupying the Guchen–Jimasa tract relied on pastoral means of life. The same conclusion must be drawn from what the Annals record of a revolt that followed in A.D. 10. Hsü Chih-li 須置離, the chief then ruling over Posterior Chü-shih, had planned defection to the Huns and been punished with decapitation by the Protector-General of the Western countries. Thereupon his brother 'took command of over two thousand of Hsü Chih-li's people, drove off the domestic animals, and the whole nation absconded and submitted to the Hsiung-nu'.[19]

Chü-shih lost to Huns, A.D. 23.

By that time the Shan-yü, the supreme king of the Huns, considering himself insulted by Wang Mang, the usurper, on his accession to the imperial power (A.D. 9), had broken with the Empire. His troops made a raid upon Chü-shih in which two Chinese commanders were killed. Then a rebellion among the Chinese troops at Kao-ch'ang led to the killing of the Wu-chi-hsiao-wei and the delivery of two thousand of his officers and men by the rebel leaders into the power of the Huns.[20] The peace subsequently patched up between the Shan-yü and Wang Mang was in A.D. 16 definitely broken. The Huns 'then made a grand attack on the northern border' of China, 'while the Western regions were broken up and scattered like loose tiles'. A Chinese force sent into the Tārīm basin in the same year succeeded, indeed, in reducing some of the revolted states there; whether these included Chü-shih is not clear. But on Wang Mang's death, A.D. 23, the Protector-General's authority was annihilated, and all Chinese political power in the Western regions ceased for fully half a century.[21]

## Section II.—TURFĀN FROM LATER HAN TO T'ANG TIMES

Chü-shih under Hun domination.

During the period comprising the first two reigns of the Later Han dynasty, Chü-shih, like all the territories of the Tārīm basin, was, as the *Hou Han shu* tells us, under the domination of the Huns.[1] Their exactions induced, as early as A.D. 45 the king of Posterior Chü-shih, with the chiefs of Shan-shan and Yen-ch'i (Kara-shahr), to offer their submission to the Emperor Kuang-wu.[2] The need of internal consolidation precluded the Empire at that time from according the desired protection. The weakening of the Hun power subsequently facilitated internecine struggles between the different 'Western countries', in the course of which Chü-shih is said to have absorbed a number of small territories along the northern slopes of the T'ien-shan.[3] When the fresh expansion of Chinese power into Central Asia under the Emperor Ming began in A.D. 73 with the first occupation of I-wu or Hāmi, Chü-shih soon became again the seat of a military commander with the title of *Wu-chi-hsiao-wei*, as in Former Han times. With the opening of the direct road to the Kan-su marches via Hāmi, Turfān was clearly destined to become even more important to the Chinese than before. But this first advance was turned into failure on the death of the Emperor Ming, A.D. 75, when the Protector-General with his force succumbed to attacks of Kara-shahr and Kuchā,

[18] See Wylie, *J. Anthrop. Inst.*, xi. p. 109; De Groot, *Hunnen*, p. 262, where the name of the chief appears as *Kou-ku* 句姑.

[19] Cf. Wylie, *ibid.*, xi. p. 111; De Groot, *ibid.*, p. 270.

[20] See Wylie, *ibid.*, xi. p. 111; De Groot, *ibid.*, p. 270.

[21] Cf. Wylie, *ibid.*, xi. p. 112; Chavannes, *T'oung-pao*, 1907, p. 155.

[1] See Chavannes, *T'oung-pao*, 1907, p. 155.

[2] See Chavannes, *ibid.*, 1907, pp. 155, 211.

[3] See Chavannes, *ibid.*, 1907, p. 156.

and the Wu-chi-hsiao-wei was besieged by the Huns and Chü-shih. A Chinese relieving force dispatched from Su-chou (Chiu-ch'üan) won, indeed, a great victory over Chü-shih in a battle fought A.D. 76 near Chiao-ho or Yār-khoto. But the Wu-chi-hsiao-wei was recalled, and the Turfān region was once again abandoned to Hun domination.[4]

Chinese control re-established, A.D. 89.

It was not until the Huns in the east had suffered a great defeat in A.D. 89 and the famous general Pan Ch'ao had re-established Chinese supremacy in the west of the Tārīm basin by a long series of brilliant operations, that Turfān and the neighbouring territories passed once again under Chinese control. In A.D. 90 I-wu (Hāmī) was recovered and both the Anterior and Posterior kings of Chü-shih sent tribute to the imperial court.[5] In A.D. 91, Pan Ch'ao having been appointed Governor-General, a Wu-chi-hsiao-wei was re-established to reside with five hundred soldiers in the camp of Kao-ch'ang (Kara-khōja), while a 'superintendent of the *Wu* tribe' 戊部侯 was placed in charge of the Posterior tribe of Chü-shih.[6] The subsequent events recorded by the notice of Chü-shih in the *Hou Han shu* clearly indicate that it was the 'Posterior tribe of Chü-shih' which it cost the Chinese administration of the Western countries most trouble to control. This fact is fully accounted for, in the first place by the closer vicinity of the Huns established in the north-east of Dzungaria, and secondly by the physical character of the northern slopes of the T'ien-shan, which permitted Posterior Chü-shih to be occupied by a population at least partly nomadic. We have already seen evidence of the influence exercised by this geographical difference between Anterior and Posterior Chü-shih on the history of the two closely linked territories. We are probably justified in looking to it also for an explanation of certain ethnic facts that may be gathered from the archaeological and literary remains of Turfān.[7]

Chü-shih abandoned to Huns, A.D. 107.

In A.D. 96 we read that Cho-ti 涿鞮, king of the Posterior tribe, on being threatened with deposition by the Wu-chi-hsiao-wei, took the offensive against the king of the Anterior tribe, by whom he had been betrayed. A large Chinese expedition had to be organized in the following year in order to pursue him into the territory of the northern Huns, where he was ultimately defeated and killed.[8] The general disorders and revolt that broke out after Pan-Ch'ao's retirement in A.D. 102 from the charge of the Western countries, and by A.D. 107 led to their complete abandonment, brought Chü-shih once again into dependence on the Huns. The Chinese occupation of I-wu (Hāmī) in A.D. 119 was followed, it is true, by the submission of the king of Anterior Chü-shih (Turfān). But the Chinese occupying force was annihilated within the same year by the Huns, assisted by the Posterior tribe of Chü-shih, and thereupon the chief of Anterior Chü-shih was also put to flight. During the years immediately following we read that the people of Chü-shih, overawed by the Huns, constantly participated in the raids by which the latter harassed the territories of Ho-hsi, from Tun-huang to beyond Kan-chou.[9]

Pan Yung regains Chü-shih, A.D. 123.

It was the imminent danger that the Huns from Turfān would overrun both Tun-huang and Shan-shan, and thus establish contact with the Ch'iang nomads in the Nan-shan and K'un-lun to the south, that appears to have forced the Emperor An-ti into action. In A.D. 123 Pan Yung, the son of Pan Ch'ao and almost as celebrated as his father, was appointed *Chang-shih* 長史 of the Western countries, with orders to establish himself with a Chinese garrison at *Liu-chung* 柳中, the present Lukchun, the chief eastern oasis of the Turfān basin. As I-wu (Hāmī) was not

[4] Cf. *ibid.*, pp. 157 sq., 211 sq.

[5] See *ibid.*, pp. 158, 212.

[6] See *ibid.*, p. 158. The *Hou Han shu* in this passage mentions 500 *li* as the distance between the residence of the 'Superintendent of the Wu tribe' and Kao-ch'ang. This in conjunction with another passage (*T'oung-pao*, 1907, p. 169), already referred to above, p. 565, proves that this residence was at *Chin-man*, the locality occupied by the Pei-t'ing of T'ang times and marked by the ruined site north of Jimasa.

[7] See above, pp. 558, 568 sq.; below, pp. 582, 585.

[8] Cf. Chavannes, *T'oung-pao*, 1907, p. 212.

[9] See *ibid.*, pp. 161, 165, 212.

reoccupied until A.D. 131, we must assume that Pan Yung gained possession of Turfān, which was to serve as a base for the renewed conquest of the Western Countries, across the Kuruk-tāgh from the side of Lou-lan. By the year 125 he had won a great victory over Chün-chiu 軍 就, king of Posterior Chü-shih, who was killed. Then, aided by two chiefs of this tribe, he attacked and defeated in the following year the Hu-yen king of the Huns, who probably held the Barkul valley.[10]

Decay of Chinese control.

The warlike character of the people in occupation of Posterior Chü-shih at that time is brought out also by the record of a great raid which the Chinese political officer in charge of this tribe succeeded with their help in carrying far into the territory of the northern Huns in the year 134. But in the very next year the king Hu-yen, of the Northern Huns, retaliated by invading Posterior Chü-shih. A Chinese expedition was then sent to succour 'the six kingdoms of Chü-shih', significantly declared to 'serve as the protection of the Western countries', but did not succeed in its object.[11] By that time, in fact, the gradual decay of the Later Han power in Central Asia had already set in.

Troubles in 'Posterior Chü-shih'.

The several expeditions subsequently undertaken from the Hāmi side against the Hu-yen king, to which reference has been made above in connexion with the Barkul region,[12] failed to remove the danger from this source by which the Chinese main line of communication was ever threatened. In A.D. 153 trouble arose with the king of Posterior Chü-shih, A-lo-to 阿 羅 多, who attacked the town of *Chü-ku*, 且 固, where the Chinese had a military colony. With the help of a portion of the tribe, the Chinese succeeded in forcing the rebel chief to seek refuge among the Northern Huns. But he soon returned and, securing the support of his people, ousted his rival Pei-chün 卑 君, whom the Chinese had set up in his place. The political expedient by which the Chinese administration tried to meet its difficult situation, and with the record of which the notice of Chü-shih in the Annals concludes, is of interest and throws light on the more or less nomadic character of the race then holding Posterior Chü-shih. While A-lo-to was reinstated, Pei-chün was removed to Tun-huang 'with three hundred tents of the Posterior tribe, specially placed under his orders so as to supply him with a fixed revenue'.[13]

Importance of road passing Turfān.

Though Chinese nominal supremacy over the 'Western countries' appears to have lingered on under the Later Han for some time longer, no data concerning the Turfān region are furnished by the records accessible to me in translation. The notices above surveyed suffice to illustrate the increased importance to the Chinese that this region attained after the high road through Hāmi and along the Eastern T'ien-shan had been opened. We find this importance strikingly expressed in the words with which the *Hou Han shu* sums up its notice of the northern route into the Tārīm basin. 'These localities [of Kao-ch'ang and Chin-man] are the gates of the Western countries; for this reason the Wu-chi-hsiao-wei have successively kept garrison there. . . . All these places are fertile. That is why the Han have constantly disputed Chü-shih and I-wu with the Hsiung-nu in order to dominate the Western countries.'[14]

Turfān between Later Han and T'ang.

The Chinese historical records of the periods that intervened between the downfall of the Later Han dynasty, A.D. 220, and the years immediately preceding the advent of the T'ang, A.D. 618, appear to contain but scant notices relating to the Turfān region or to the 'Western countries' in general. But the few I am able to gather from among those rendered accessible by the researches of M. Chavannes and Professor O. Franke seem to indicate clearly that political relations with China and the influence of Chinese civilization, such as resulted from Han supremacy, continued during these four centuries to be maintained both there and farther west in the Tārīm basin, though probably to a reduced extent and with interruptions.

[10] Cf. Chavannes, *T'oung-pao*, 1907, pp. 167, 213; for the Hu-yen king, see above, pp. 540 sq.

[11] See *ibid.*, pp. 213 sqq.

[12] See above, pp. 543 sq.

[13] See Chavannes, *ibid.*, pp. 214 sq.

[14] Cf. *ibid.*, p. 169.

Conquests of Chang family of Liang-chou.

The Annals of the Chin dynasty afford direct evidence that, during the later portion of the period covered by its reigns (A.D. 265–419), the chiefs of the Chang 張 family, who had set up a local dynasty which for centuries ruled the Kan-su marches from Liang-chou, repeatedly made extensive conquests in the 'Western countries'. Thus the expedition sent by Chang Chün, which in A.D. 345 secured Yen-ch'i (Kara-shahr) from the east, obviously presupposes the previous submission of Turfān.[15] The same is equally certain of the great expedition of Lü Kuang 呂光, which was sent in A.D. 383 by Chang Chün's son, Chang Ch'ung-hua, and which reduced the whole of the Tārīm basin.[16] In the case of this expedition we are explicitly told that Lü Kuang was guided by Mi-chih 彌寘, king of Anterior Chü-shih, and by Hsiu-mi-t'o 休密馱, king of Shan-shan or the Lop tract.[17] Of effective Chinese influence, if not of direct political control, exercised during parts at least of the Chin epoch in the east and south of the Tārīm basin, we have conclusive archaeological evidence in the Chinese documents recovered at the Niya Site and at the Lou-lan station L.A. Considering the position of Turfān, it is difficult to believe that the same influence did not extend simultaneously to this territory also.[18]

Turfān secured by Wu-hui.

For the period extending from the beginning of the fifth century to its end some interesting notices concerning Turfān are extracted from Chinese historical sources, especially the *Pei shih*, and lucidly discussed, in Professor O. Franke's important paper 'Eine chinesische Tempelinschrift aus Idikutšahri bei Turfan'.[19] Mêng hsün 蒙遜, a descendant of the old *Chü-ch'ü* 沮渠 family, of Hsiung-nu origin, had by A.D. 401 established himself as ruler of an independent state in Kan-su, calling himself 'Ruler of Ho-hsi'. By 421 he had extended his power as far as Tun-huang and had apparently also brought some Turkestān territories, among them Kao-ch'ang, into some kind of dependence.[20] His son Mao-ch'ien 茂虔, who succeeded him in A.D. 433, was unable to maintain himself against the Wei Emperor T'ai Wu-ti. After his submission in 439, Wu-hui 無諱, governor of Chiu-ch'üan (Su-chou) and also of the Chü-ch'ü family, vainly endeavoured to make himself independent, and by 442 retired to Shan-shan with a small force in the hope of securing for himself a new dominion in the west.[21] After having been appealed to for help by Kan Shuang 闞爽, a Chinese officer who had set himself up as a petty ruler over Kao-ch'ang, he treacherously managed to make himself master of this town and its territory, while Kan Shuang took refuge with the powerful Juan-juan or Avars in the north.[22]

Turfān ruled by An-chou.

Wu-hui died in 444 and was succeeded by his brother An-chou 安周, who ruled over Kao-ch'ang, and from 450 onwards over the whole Turfān territory, until 460. In the former year he succeeded with the help of the Juan-juan in also annexing the petty state of Chiao-ho, the former

[15] See Chavannes, *Anc. Khotan*, i. pp. 543 sq.

[16] Cf. *ibid.*, i. p. 544.

[17] See *ibid.*, i. p. 544, note 8.

[18] Cf. *Anc. Khotan*, i. pp. 370 sqq.; Chavannes, *ibid.*, i. pp. 537 sqq.; *Serindia*, i. pp. 406 sqq.; Chavannes, *Documents*, pp. 155 sqq.; Conrady, *Funde Sven Hedins*, pp. 77 sqq.

It may here be noted that soldiers from Kao-ch'ang are several times mentioned in the Lou-lan documents; cf. Chavannes, *Documents*, p. 194, and Conrady, *Funde Sven Hedins*, pp. 135, 139.

[19] In Franke, *Abhandlungen der Kön. Preussischen Akademie der Wissenschaften*, Berlin, 1907, pp. 7 sqq.

[20] See *ibid.*, pp. 11 sq., 15.

[21] Cf. *ibid.*, pp. 17 sq. I regret not to have noticed in *Serindia*, i. pp. 323 sqq. the interesting reference made to Shan-shan in the texts quoted by Prof. Franke, p. 18. Wu-hui had sent his brother An-chou ahead to Shan-shan. Its chief *Pi-lung* attempted to resist in compliance with injunctions from the Wei Emperor, and An-chou was obliged to retire to the 'eastern town'. In this must be recognized, as already duly noted by Prof. Franke, the 'old eastern town' which Li Tao-yüan's commentary on the *Shui ching* (Chavannes, *T'oung-pao*, 1905, p. 569) identifies with *Yü-ni*, the old capital of Shan-shan, and which, I think, must be located at the ruined site of Mīrān; see *Serindia*, i. pp. 326 sq.

The subsequent statement that Wu-hui's attack upon Kao-ch'ang was made via Yen-ch'i or Kara-shahr is also of interest, as it shows that the most direct route across the Lop Desert and the Kuruk-tāgh was no longer available owing to the drying up of the Kuruk-daryā and the abandonment of Lou-lan.

[22] Cf. Franke, *Inschrift aus Idikutšahri*, pp. 19 sqq.

capital of the 'Anterior tribe of Chü-shih', held between 433 and 450 by I-lê 伊洛. In 460 An-chou himself was attacked in Kao-ch'ang and killed by the Juan-juan, who installed in his place a descendant of Kan Shuang, Han Po-chou 闞伯周.[22] There is evidence that this puppet king and his son reigned till the year 481. The memory of An-chou is celebrated in the Chinese inscription of 469 that Professor Grünwedel acquired from the ruins of a Buddhist shrine of Idikut-shahri, dedicated that year to Maitreya; this inscription has been edited and discussed by Professor Franke in the above-quoted paper. After 481 Turfān passed through a protracted period of disorder, in which the neighbouring Uigur tribe of the Tölös or T'ieh-lê made its influence strongly felt. But there can be no doubt that in Turfān, as throughout the regions along the Eastern T'ien-shan, the paramount power all through the fifth century was wielded by the Juan-juan or Avars, until, about the middle of the sixth century, their empire succumbed to the Tu-chüeh or Turks.[24]

Rule of *Ch'ü* family.

An interesting notice of the *Pei-shih*, which M. Chavannes has extracted,[25] tells us that from A. D. 507 onwards the throne of Kao-ch'ang was occupied by the *Ch'ü* 麴, a family of Chinese origin, whose old home was in the vicinity of Lan-chou fu. The founder of the house was Ch'ü Chia 麴嘉, who was followed in succession by his son Ch'ü Chien 麴堅 and his grandson Ch'ü Po-ya 麴伯雅.[25a] The mention made that the last prince's grandmother was a daughter of the Kagan of the Tu-chüeh or Turks is only one of a series of indications showing the close relation that subsisted between these rulers of Turfān and their Turkish neighbours to the north.

Homage paid to Sui Emperor.

Yet when Chinese imperial power under the Sui dynasty began again to make itself felt beyond the Kan-su marches, Ch'ü Po-ya, with the Turkish chief of I-wu or Hāmi, was the first to offer tribute, A. D. 608.[26] In the following year the Turfān king came in person to do homage at the imperial court and received a Chinese princess in marriage. On his return, A. D. 612, he promulgated a decree ordering his people to adopt Chinese fashions in dress, and in due course received imperial thanks and titles as a reward for this renunciation of barbarian customs. Yet, significantly enough, we are told that Ch'ü Po-ya nevertheless did not dare to break off relations with the T'ieh-lê 鐵勒 or Tölös, to whom he had become subject after their victory over Ch'u-lo, Kagan of the Western Turks,[27] and who claimed the taxes levied by him on all traders passing through his territory.[28] This notice is of interest, because it illustrates the natural dependence of Turfān upon its nomadic and consequently more virile neighbours established on the northern side of the mountains, and the ease with which these could always levy blackmail on the trade passing through the oases on the south. It also foreshadows the conditions that probably prevailed in the fertile settled district of Turfān during later times, when after the close of T'ang domination it had passed under the rule of the Uigurs, the most famous tribe of the Tölös.

Turfān described in *Pei shih*.

The interesting and detailed description of the territory of Kao-ch'ang which is furnished by the *Pei shih* composed in the seventh century has been fully translated and discussed by Professor Franke in his above-quoted paper.[29] It will therefore suffice to mention here only certain points that have a distinct antiquarian bearing. In that portion which relates to the 4th–5th century of our era, Kao-ch'ang is said to contain eight towns, all of them including Chinese among their inhabitants. Mention is made of the warm climate and the fertility of the soil, which allow cereals to ripen several times in the year. Irrigation of the fields is specially noted; also sericulture and abundance of fruit and wine. The people are said generally to worship 'the spirit of Heaven'

[23] See Franke, *loc. cit.*, pp. 21 sq.

[24] Cf. Chavannes, *Turcs occid.*, p. 221.

[25] See *ibid.*, p. 102, note 2. For the correct date of Chü Chia's accession, cf. Franke, *loc. cit.*, p. 25, note 1.

[25a] [But see M. Maspero's reconstruction of the dates, *B.E.F.E.O.*, 1915.—Dr. L. Giles.]

[26] Cf. Chavannes, *Turcs occid.*, p. 169, note 8.

[27] See *ibid.*, p. 89, note 3.

[28] See *ibid.*, p. 103, note.

[29] See Franke, *Inschrift aus Idikutšahri*, pp. 27 sq.

(*t'ien shên* 天 神), which probably means Manichaeism, while at the same time believing in the Buddhist doctrine. The statement that sheep and horses were kept in distant little-known localities is probably to be explained by the fact that grazing grounds are to be found only in some of the highest side valleys south of the main range and are difficult of access.[29a] Another portion of the account, relating to the period (557–618) of the Chou and Sui dynasties, which preceded the T'ang, mentions sixteen towns in Kao-ch'ang, later on increased to eighteen, and gives details of the administrative system organized after Chinese models. While the men dress as is the custom of 'the barbarians (*Hu*), the women in costume and hairdressing follow Chinese fashions'. Writing was the same as in China, but the scripts of the *Hu* were also in use. Laws, customs and ceremonies were in essentials those of China.

Desert route between Tun-huang and Turfān.

It is of interest to note that the account given by the *Pei shih* concludes with a reference to the great desert stretching between Kao-ch'ang and Tun-huang 'where there is no road and travellers have to seek their way by the skeletons of men and animals. On the way one hears sounds of singing or wailing, and if people follow these they usually come to their end. Hence travelling traders ordinarily follow the route via I-wu (Hāmi).'[30] I think that we can safely conclude from this record that a direct route from Turfān to Tun-huang, leading perhaps past those easternmost springs of the Kuruk-tāgh which Lāl Singh explored in January, 1915, to the Bēsh-toghrak valley, was still occasionally followed by adventurous wayfarers in the seventh century.[31]

Kao-ch'ang after T'ang accession.

The *T'ang shu*'s notice of Kao-ch'ang takes up the story with the death of Ch'ü Po-ya and the accession of his son Ch'ü Wên-t'ai 麴 文 泰, which occurred in A.D. 619, within a year of the establishment of the T'ang dynasty. The account of his reign throws a characteristic light on the position in which Turfān was necessarily placed when plans of Central-Asian expansion had once again been resumed by China. Embassies of homage from Kao-ch'ang are recorded in the years 619 and 620.[32] Among presents offered by its king to the imperial court in the years 624 and 627 are mentioned two performing lap-dogs said to have come from *Fu-lin* or Syria. This is of interest as pointing to trade connexions with the distant Byzantine Empire, confirmation of which is afforded for this period by archaeological finds in Turfān.[33] In 630 Ch'ü Wên-t'ai personally paid a visit of homage to the Emperor T'ai-tsung. But some time after his return, he helped the Kagan of the Western Turks to plunder missions that were proceeding to the imperial court and to attack Hāmi, which in A.D. 630 had come under Chinese control. The remonstrances made thereupon by the Emperor produced no result. Ch'ü Wên-t'ai did not proceed in person to the court, as invited; nor did he send his commander-in-chief, who had previously been summoned there to account for the attack upon Hāmi. The family name *A-shih-na* 阿 史 那 borne by this personage, as M. Chavannes points out, proves his Turkish origin and by itself serves to indicate the influence then wielded by the Turks in the administration of Turfān.[34]

Chinese conquest of Kao-ch'ang territory.

Thereupon a large force was organized for the conquest of Turfān. This was to open the way to the establishment of Chinese supremacy over the Western countries. Ch'ü Wên-t'ai appears to have relied on the protection afforded by the difficulties of the desert crossing, and died from terror in A.D. 640, when the Chinese army had effected its passage through the desert. The inscription of that year set up on the Barkul pass, to which reference has been made above, shows the care with which preparations had been made by the Chinese commanders to assure the

[29a] See above, p. 562.

[30] It is this passage that Sir Henry Yule, *Marco Polo*, i. p. 210, quotes from Ma Tuan-lin (in Visdelou's translation) in illustration of similar folk-lore beliefs about the Lop Desert; cf. *Serindia*, ii. pp. 562 sq.

[31] As to traditional recollections of such a direct route, cf. above, pp. 273, 319.

[32] See Chavannes, *Turcs occid.*, p. 24, note 3.

[33] See below, Chap. XIX, sec. i, v.

[34] See Chavannes, *Turcs occid.*, p. 104, note 2.

success of this expedition.[35] The town of *T'ien-ti* 田 地, by which probably Kao-ch'ang, i. e. Kara-khōja, is meant,[36] was quickly taken by a surprise attack. Ch'ü Chih-shêng 麴 智 盛, who had succeeded his father on the throne, was invested in the capital, and soon surrendered, after showers of stones thrown by the Chinese engines of siege had produced panic in the town.[37]

Protectorate of *An-hsi* established.

The whole territory was then occupied and turned into the district of *Hsi chou* 西 州, with the Protectorate of *An-hsi* 安 西 established at its head-quarters. This Protectorate was for a short while shifted to Kuchā, after the first conquest of this territory in 648. But in consequence of a change of policy on the accession of the Emperor Kao-tsung, it was brought back again to Turfān in 650 and then located at Kao-ch'ang.[38] The head-quarters of the newly formed Chinese district appear to have been left at the capital, i. e. Chiao-ho, the present Yār-khoto. Not until Chinese power had been extended over the whole of the Tārīm basin and the territories north of it, by a final victory over the Western Turks, was the An-hsi Protectorate transferred, A.D. 658, to its definite location at Kuchā.

Organization of Turfān territory.

The territory secured by the taking of Chiao-ho and its king is stated to have comprised three districts, five 'sub-prefectures', twenty-two towns, eight thousand households, thirty thousand inhabitants and four thousand horses. Whether the figures of population here given may be considered as approximately accurate it is impossible to say. The mention that in T'ien-ti (Kao-ch'ang) alone more than seven thousand prisoners were taken might well suggest some under-estimate. A similar inference may be drawn from the assertion attributed to Ch'ü Wên-t'ai that if the Chinese force that got through the desert were to number less than thirty thousand men, his own army would be able to master it.[39] However this may be, it is clear that the great strategic importance of Turfān was from the first fully recognized by those who prepared the Emperor T'ai-tsung's plans for the extension of Chinese supremacy into the Western countries. A sign of the special value attached by them to the possession of this foothold may be recognized in the fact that the Emperor decided upon the complete incorporation of the territory within the administrative limits of the empire, instead of allowing it to remain under a vassal chief, as was urged by memorials reproduced at length in the *T'ang shu*, and as was done in the case of the states subsequently reduced within the Tārīm basin.[40]

N. slope of T'ien-shan occupied.

The conquest of the Turfān basin was supplemented at the same time by the occupation of the adjoining territory on the northern side of the T'ien-shan. Ch'ü Wên-t'ai had relied on the help of the Western Turks, secured by a treaty with their supreme chief, and one of their *Shê-hu* (Jabgu) had been placed in the town of Kagan-stūpa, corresponding to the later Pei-t'ing.[41] But overawed by the Chinese advance he surrendered the territory, which was turned into the Chinese district of *T'ing* 庭.[42] Thus firmly posted astride as it were of the T'ien-shan, the Chinese were in safe possession of a base which secured the routes both north and south of the mountains for the farther advance, and which was capable of furnishing supplies for the forces needed to effect it.

[35] Cf. above, pp. 544 sq.

[36] Cf. Franke, *Inschrift aus Idikutšahri*, pp. 31 sqq., where evidence from Chinese historical texts is adduced that *T'ien-ti* was the original name of the locality where the military colony of Kao-ch'ang was founded under the Han.

[37] See Chavannes, *Turcs occid.*, p. 106; also *Notes addit.*, *T'oung-pao*, 1904, pp. 7 sq.

I believe that the great importance which the Chinese command attached to the construction of these siege engines, especially ballistae, as clearly indicated in the inscription of the Barkul pass (see Chavannes, *Dix inscriptions*, pp. 30 sq.), must be accounted for by the strength of the position occupied by the capital Chiao-ho or Yār-khoto.

The site, as the plan Pl. 35 shows, is defended on all sides by the high and precipitous loess cliffs of the two 'Yārs' between which the town was built. The great strength of the walls and fosse thus provided by Nature would have made direct assault very difficult and a siege without artillery necessarily protracted.

[38] See Chavannes, *Turcs occid.*, p. 107, note 1, with the rectification in *T'oung-pao*, 1904, p. 19.

[39] See *ibid.*, p. 106.

[40] See *ibid.*, pp. 107 sq.

[41] Cf. above, pp. 555 sq.

[42] See Chavannes, *Turcs occid.*, p. 109.

To complete this summary of the notices in the T'ang Annals concerning Turfān, the description of Kao-ch'ang given in Chapter CCXXI of the *T'ang shu* may be reproduced here from M. Chavannes' translation:[43] 'Kao-ch'ang is over four thousand *li*, as the crow flies, to the west of the capital; it measures eight hundred *li* from east to west and five hundred *li* from north to south; it comprises twenty-one towns; the king has his capital in the town of *Chiao-ho*, which is the same as the Court of the Anterior king of Chü-shih at the epoch of the Han; the town of *T'ien-ti* was the administrative seat of the *Wu-chi-hsiao-wei*.[44] The soil is fertile; wheat and cereals produce there two harvests every year; there is to be found there a plant called *po-tieh* 白疊; one picks its flower which one can spin in order to make cloth of it.[45] It is the [inhabitants'] custom to tie their hair into a plait which hangs behind the head.'[46] The dimensions indicated for the territory probably represent, as is usual in such cases, rough estimates of the distances to be covered on the high roads leading through the territory from east to west and from north to south. Taken in this sense, the measurements are reasonably correct; for from Chik-tam where the high road from the east first reaches inhabited ground in the Turfān basin, to Manān-chose-dawān where it leaves it in the south-west, eight daily marches would be the present customary estimate. Similarly five marches would be reckoned in proceeding from Hsi-yao-tzŭ, where the most frequented road across the T'ien-shan descends from the watershed, to the outermost Kuruk-tāgh range, which constitutes the southern rim of the basin. Turfān described in *T'ang shu*.

The administrative absorption of Turfān into the Chinese Empire has deprived us of the account which Hsüan-tsang's *Hsi yü chi* would otherwise have furnished of the territory. The great pilgrim had reached it in 630 on his way westwards from Hāmi, and had been received there with much honour by Ch'ü Wên-t'ai.[47] The king had in fact wished to detain him altogether, and in the end consented to release him only on Hsüan-tsang's promise that on his way back he would stay at Kao-ch'ang for three years. But when Hsüan-tsang was returning towards China in 644–5, Kao-ch'ang had ceased to exist as a kingdom, and he was free to travel by way of Khotan and Lop. If Kao-ch'ang thus dropped out of his 'Memoirs of the Western regions', Hsüan-tsang at least bears witness to the close connexion existing at the time between its ruler and the Western Turks; for he tells us that a sister of Ch'ü Wên-t'ai was married to the eldest son of T'ung Shê-hu, the supreme Kagan of the Western Turks, and that the Kao-ch'ang chief's recommendation to the Kagan had secured for him powerful support on his journey all through the latter's vast dominion.[48] Hsüan-tsang's passage through Turfān.

The transfer of the An-hsi Protectorate to Kuchā in A.D. 658 marked the establishment of a new base for Chinese political activity in Eastern Turkestān. This helps to explain why the abundance of exact and reliable data which M. Chavannes's masterly researches have gathered from the T'ang Annals for this period of Chinese expansion in Central Asia, supplies but little information as to the events and conditions particularly affecting Turfān. Between the years 640 and 670 the district may be assumed to have remained in undisturbed Chinese occupation. But whether this continued during the two following decades appears very doubtful. We know that after A.D. 670 the 'Four Garrisons' controlled by the Protectorate of An-hsi (Kuchā, Khotan, Kāshgar, Tokmak) were overrun by the Tibetans, who had in that year won a signal victory over Turfān between A.D. 658–92.

[43] Cf. *ibid.*, pp. 101 sq.

[44] Regarding the identification of *T'ien-ti* with the present Lukchun, cf. Chavannes, *Turcs occid.*, Errata et Corr., p. 310.

[45] Obviously the cotton plant is meant, as explained by Chavannes, *ibid.*, p. 102, note 1. Its cultivation is still one of the chief agricultural resources of Turfān and its product a main article of export.

[46] See also the imperial decree concerning Ch'ü Po-ya, quoted by the *Pei-shih*; *ibid.*, p. 103, note; also Franke, *Inschrift aus Idikutšahri*, p. 28.

[47] Cf. Julien, *Vie*, pp. 32 sqq.; Chavannes, *Turcs occid.*, pp. 193 sq.

[48] Cf. Julien, *Vie*, pp. 61 sq.

the imperial forces north of the Kuku-nōr, and that notwithstanding the successes won by certain Chinese generals in 673 and 677–9, Chinese supremacy in those regions was not re-established until 692.[49] It seems difficult to believe that the Tibetans, who had then risen to formidable power, should have conquered the Tārīm basin and made their influence felt even north of the T'ien-shan, without having at least temporarily secured mastery over the oases from Tun-huang to Turfān, through which led the least difficult line of access to the former.[50]

Final phase of Chinese occupation.

The recovery of the 'Four Garrisons' in 692 was followed by a period of consolidation of Chinese power in Eastern Turkestān, which extended over more than half a century and must have brought increased prosperity to Turfān.[51] Rapid decline set in with the crushing defeat inflicted in 751 by the Arabs in Tāshkend territory on Kao Hsien-chih, the leader of the famous expedition across the Pāmīrs and Hindukush, who then had charge of the 'Four Garrisons'. But even then Turfān remained in Chinese hands for forty years longer. Otherwise the Protectorates of Kuchā and Pei-t'ing could scarcely have maintained themselves, after the complete severance of direct communication with the Empire caused by the Tibetan conquest of Kan-su and its western marches, including Tun-huang, in about A. D. 766.[52] The very interesting records which M. Chavannes has collected from the T'ang Annals concerning this final phase of Chinese dominion in these outlying territories, and reproduced in Appendix *A* of *Ancient Khotan*, distinctly mention *Hsi*, i. e. Turfān, together with I[-wu] or Hāmi and Pei-t'ing, as the districts governed by Li Yüan-chung, to whom the Emperor in 781 granted the title of 'Grand Protector of Pei-t'ing'. He and Kuo Hsin, governor of the Four Garrisons, had managed in that year to send messengers to the imperial court by devious routes through the territories held by friendly Hui-ho 回紇, i.e. Uigur tribes.

Tibetan attacks, A. D. 789.

The enfeebled Empire had to content itself with bestowing great titles, nominal promotion and the like, upon those valiant Wardens of its last Central-Asian possessions, their officers and men, without affording the help against the increasing pressure of the Tibetans from the south which had, no doubt, been prayed for.[53] In 783–4 a proposal to hand over to the latter 'the territories of I 伊 (Hāmi), Hsi 西 and Pei-t'ing 北庭' was under serious consideration by the Emperor, but was finally negatived.[54] Towards the close of the year 789 fresh reports reached the court from Pei-t'ing, showing the desperate straits to which were reduced the Chinese who still held that territory and Turfān. The party of officials which had brought these reports, travelling by way of the Uigurs, was evidently that to which the Buddhist pilgrim Wu-k'ung had attached himself when regaining China after an absence of nearly forty years in the 'Western countries' and India.[55] The Tibetans were reported to be attacking Pei-t'ing with the help of Karluk and other Turk tribes, while an Uigur force was coming to relieve it.

[49] See Chavannes, *Turcs occid.*, pp. 114, 119, 122, 280; also for a summary of the data relating to this Tibetan invasion of the 'Four Garrisons', *Anc. Khotan*, i. p. 61.

[50] In this connexion it may be noted that when the Chinese commander P'ei Hsing-chien with a small force proceeded in 677 on an expedition against a Turk chief allied with the Tibetans he was met outside Hsi chou (Yār-khoto) by the former's men; see *Turcs occid.*, p. 74, note 3.

A little after 679 the Annals record the transfer of Wang Fang-i, bearing the title of Protector of An-hsi, to the prefecture of the *T'ing* district, the later Pei-t'ing; cf. *ibid.*, p. 76 note.

[51] For a summary review of this period, and references to the data furnished by Chavannes, *Turcs occid.*, see *Anc. Khotan*, i. pp. 62 sq.

[52] See *Anc. Khotan*, i. p. 63, and M. Chavannes's App. *A*, *ibid.*, i. p. 534.

[53] See M. Chavannes's extracts from the *Tsŭ chih tung chien*, *loc. cit.*, i. pp. 534 sq. The friendly relations which the Chinese at Pei-t'ing maintained with the Uigurs and which are shown also by the events of 789 referred to below, suggest that the Uigur occupation of Kagan-stūpa, i. e. Pei-t'ing, about the middle of the eighth century, to which a passage quoted by M. Chavannes, *Turcs occid.*, p. 305, alludes, may have been more in the nature of a settlement than of forcible conquest.

[54] See Chavannes, *Anc. Khotan*, i. p. 535.

[55] See Chavannes and S. Lévi, 'L'itinéraire d'Ou-k'ong', in *J. As.*, 1895, Sept.–Oct., pp. 365 sq.

Wu-k'ung, when first travelling in 751 to Chi-pin or

The final scene of the struggle was close at hand. The Uigurs' attempt at relief in the spring of 790 failed, and the people of Pei-t'ing, tired of Uigur exactions, submitted to the Tibetans, together with the Sha-t'o tribe, a branch of the Turkish Ch'u-yüeh, who appear, as early as the first T'ang advance to Hāmi and Turfān,[56] in semi-nomadic occupation of the Guchen region. The Chinese administrator of Pei-t'ing, Yang Hsi-ku, with his force of two thousand men, was obliged to retire to *Hsi-chou* or Turfān. Towards the close of 790 a fresh effort was made by the Uigurs to retake Pei-t'ing, but led to their signal defeat. Yang Hsi-kou, who had shared the attempt, was preparing to take refuge in Turfān with the few hundred men he had saved. But the Uigurs treacherously detained him and ultimately put him to death to save themselves from further complications. 'After this An-hsi (Kuchā) was completely isolated and no one knew what became of it. But the district of Hsi-chou (Turfān) continued to hold out bravely in order to remain faithful to the T'ang.'[57]

Pei-t'ing lost to Tibetans.

## SECTION III.—TURFĀN UNDER THE UIGURS

The complete predominance which the Tibetans appear to have gained in Eastern Turkestān during the early part of the ninth century accounts for the absence of further references to Turfān in the Chinese records for this period. But soon after the middle of that century, Tibetan supremacy in that region and in westernmost Kan-su was broken by the Uigurs, whom Kirghiz attacks and internal dissensions had forced to move from their former seats in Mongolia to the south and south-west.[1] The Sung Annals, whose record of the events leading to the foundation of this new Uigur dominion after A. D. 847 is in substantial agreement with the *T'ang shu's* notice on the Hui-ho or Uigurs distinctly mention Hsi-chou or Turfān as comprised in it, together with Kan-chou and Sha-chou or Tun-huang.[2]

Tibetan supremacy broken by Uigurs.

It was in the western portion of their new territories that the Uigurs were destined during a prolonged period to play a part of historical importance, and one of considerable interest to the student of Central-Asian civilization, literature and ethnology. The power of the Uigur Kagans holding Kan-chou and other parts of the Kan-su marches succumbed by 1031 to the Tangut or Hsi-hsia.[3] But the Uigurs in the west created a powerful kingdom, which for centuries extended far along the eastern T'ien-shan and, even when divided into several principalities, continued as regards the race and traditions of the rulers to maintain its distinctive character well beyond the Mongol period. By the protection it afforded to the oases under its control this Uigur rule exercised a far-reaching influence upon the cultural destinies of Turkestān. On the one hand it helped to preserve in those oases the cults and literary and artistic traditions derived during the

Effects of Uigur domination.

Kapisa, probably passed through Turfān on his way to An-hsi (Kuchā) and Su-lê (Kāshgar). But the laconic record of his travels gives no details.

On his return journey he appears to have travelled straight from Yen-ch'i or Kara-shahr to Pei-t'ing, probably viâ Toksun and Urumchi, without stopping in Turfān.

Wu-k'ung distinctly mentions that, for the journey to the capital, the Imperial envoy and other Chinese officers to whom he attached himself had to take the route of the Uigurs, because the way across the 'river of sand', i. e. the Hāmi—Kan-chou road (see *Serindia*, iii. pp. 1144 sqq.), was closed, no doubt by the Tibetans who held the Kan-su marches, if not also Hāmi.

[56] Cf. Chavannes, *Turcs occid.*, pp. 96 sqq. Several Sha-t'o chiefs are mentioned as holding appointment as governors of Chin-man or Pei-t'ing in the first half of the eighth century; cf. *ibid.*, pp. 98 sq.

[57] See Chavannes in *Anc. Khotan*, i. p. 537, quoting the *Tzŭ chih t'ung chien's* record for 790.

[1] Regarding the history of the Uigurs and the part played by them in Eastern Turkestān and the Kan-su marches after the Tibetan occupation of these territories, cf. the extracts from the T'ang and Liao Annals in Bretschneider, *Med. Researches*, i. pp. 241 sqq.; also the lucid analysis of M. Grenard, *J. As.*, 1900, janv.-févr., pp. 19 sqq.

[2] Cf. Bretschneider, *Med. Researches*, i. pp. 243 sq.

[3] See Bushell, *The Hsi-hsia Dynasty of Tangut*, p. 4.

preceding thousand years from India, the Near East and China; whereas the advance of Islām, which the Karluk-Turk dynasty of Balāsāghun ruling Kāshgar had adopted about the middle of the tenth century,[4] tended to suppress them in the western portion of the Tārīm basin. On the other hand, it may be credited with a very large, if not a preponderant, share in imposing upon the racially distinct and linguistically very varied populations of the Tārīm basin that exclusive use of the Turkish language which prevails to this day and which the fostering of an Uigur literature is sure to have greatly propagated. The remains brought to light at the Turfān sites bear ample testimony to this double effect of Uigur rule, and this fact may justify the introduction here of these few general observations concerning it.

Advantages of possession of both Turfān and Guchen.

Turfān, by its geographical position, was exceptionally well adapted to facilitate fusion in culture and language between its last Turkish conquerors and the ancient stock established in the oases. I have already had occasion to emphasize how closely linked by mutual economic relations and hence also by history are the two territories which we know successively as Anterior and Posterior Chü-shih, Kao-ch'ang and Pei-t'ing, Turfān and Guchen. The two held in conjunction were admirably adapted by nature to serve as the cherished seat of rulers of an originally nomadic tribe, capable and eager to adapt itself to civilized life. On the northern slopes of the mountains they and their people could for a long time keep up what was pleasant in their traditional ways of life, while drawing at the same time upon the settled population of the fertile oases to the south for the material and intellectual resources with which to strengthen their power and to add to the pleasures of its possession.

Visit of Wang Yen-tê, A. D. 982.

This explains why under Uigur domination Turfān acquired importance as the chief seat of the power then ruling the greater portion of the lands that had once been controlled by the 'Four Garrisons' of the T'ang. The favourable conditions prevailing at this time in the territories on both sides of the mountains are strikingly demonstrated by the account that fortunately has come down to us of the visit paid by the Chinese imperial envoy Wang Yen-tê 王延德 to the Uigur king Arslān Kagan in A. D. 982.[5] Certain details of topographical or antiquarian interest offered by his narrative are discussed in a note below.[6] Here I may content myself with calling attention to

[4] Cf. Grenard, *J. As.*, 1900, janv.-févr., pp. 38 sqq.

[5] See Julien's translation of Wang Yen-tê's narrative, as extracted in Ma Tuan-lin's encyclopaedia from Chap. ccccxc of the Sung Annals, in *J. As.*, 1847, ix, pp. 50 sqq. A later edition of Julien's translation in his *Mélanges de géographie asiatique*, pp. 80–102, is not accessible to me.

[6] Wang Yen-tê's itinerary to Turfān is clearly traceable from Hāmi onwards. From this place named by him *I-chou* (I-wou), p. 54, he proceeded to *Na-chih*, the present village of Lapchuk, west of Hāmi (see Map No. 34. B. 3; *Serindia*, iii. p. 1157; Pelliot, *J. As.*, 1916, janv.-févr., pp. 128 sq.).

Thence he travelled by the route that leads through the stony desert south of the present high road between Hāmi and Chik-tam (Map No. 31. B. 2); this, owing to want of water along its greater portion, is nowadays used only in the winter with camels or donkeys. It has been surveyed by Roborovsky and leads along the most direct line between the last inhabited places of the Hāmi and Turfān territories, on the west and east, respectively. The absolutely waterless route surveyed by Muḥammad Yāqūb in October, 1914, and shown in Map No. 31. B–D. 3, lies to the south of it.

Wang Yen-tê duly mentions the total want of grazing along the route he followed and the violent winds which make the passage of its western portion, then known as 'the valley of the demons', dangerous to travellers (cf. M. Chavannes' translation of this passage, *T'oung-pao*, 1905, p. 530, note).

The temple of *Tsê-t'ien* 澤田 ('fertilizing the fields'), which he reached after eight days' travel (from Na-chih), p. 56, may safely be located at Chik-tam, the first place where cultivation is found on the above-mentioned route from Lapchuk to Turfān. Eight daily marches would not be too many to enable a traveller much encumbered with baggage, as the imperial envoy no doubt was, to cover the distance. Having been met here by officials of the Uigur prince, Wang Yen-tê then proceeded through the locality of *Pao-chuang* 寶莊, which manifestly corresponds to the present Hsien of Pichan, and the locality of *Lu-chung* 六鍾, the present Lukchun (the Liu-chung 六種 of the *Hou Han shu*), to Kao-ch'ang, 'otherwise known as *Hsi-chou*', i. e. Turfān.

Wang Yen-tê's account fixes clearly the position of the capital when he mentions 'a river which issuing from the mountains of *Chin-ling* (i. e. the T'ien-shan, called *Chin-sha ling* in the T'ang itinerary from Chiao-ho to Pei-t'ing; see above, pp. 563 sq.) has its waters divided in such a way that

a few essential facts which throw light on characteristic aspects of Turfān as it presented itself at a time when most of its extant ruined sites were still places 'in being'.

Account of Turfān population.

Wang Yen-tê clearly indicates the great extent of the region then subject to the Uigur king by mentioning that to the south it extended as far as Yü-t'ien or Khotan and westwards comprised the An-hsi of T'ang times, i. e. Kuchā.[7] The great aridity of the Turfān basin and the excessive summer heat which made its inhabitants seek shelter in subterranean rooms (the vaulted *kemers* to be found in all Turfān habitations, whether ancient or modern) are accurately described.[8] The fondness of the people for good living, amusements of various sorts, and music is quite correctly brought out. It still survives with the modifications involved by the change of times. The mention made of the people of noble descent indulging in horse-flesh, while the common folk eat mutton, ducks and geese, indicates a survival of nomadic taste among the ruling Uigur classes.[9]

Manichaean worship.

Wang Yen-tê saw fifty Buddhist convents, bearing on their gates names given by T'ang Emperors, and refers particularly to a great library of Chinese Buddhist texts in one of them.[10] The large number of ruined Buddhist shrines and the abundant finds of Chinese manuscript remains in them fully bear out his statement. The allusion to a shrine called *Ma-ni-ssŭ*, i. e. the temple

they pass around the capital, irrigate the fields and gardens and work mills'; for this description exactly applies to the stream which issues from the gorge of Sengim and by means of canals taking off from its branching beds irrigates the whole of the oasis of Kara-khōja (Map No. 28. c. 3).

The Kao-ch'ang people's love of music, on which Wang Yen-tê lays stress, their habit of never undertaking promenades or excursions without taking with them musical instruments (pp. 57 sq.), are well illustrated by archaeological finds; see below, Chap. XIX. His references to details of the Chinese calendar, to seasonal sacrifices, to great collections of Chinese texts, Buddhist and others, to an archive of imperial edicts, &c. (pp. 57 sqq.), all go to prove how deep and lasting were the effects upon the Turfān people of prolonged contact with Chinese rule and civilization. The general prosperity there prevailing under Uigur rule is indicated by the mention of the practice of feeding such poor as there were at the public expense, and of the great age generally attained by the inhabitants.

It is quite certain that Wang Yen-tê, when proceeding to the 'northern court' of Arslān Kagan, travelled by the route leading across the pass above Pa-no-p'a. But it is difficult to fix exactly the stages he mentions. Travelling obviously in the leisurely fashion befitting an imperial envoy, he took six days to cross the district of Chiao-ho (Yār-khoto) and to reach 'the entrance of the passage through the *Chin-ling* mountains', a locality by which perhaps the halting-place of Shaftulluk, the 'Dragon spring', may be meant (see above, p. 563).

The next two marches brought him to *Han chia chai*, 'the camp of the Chinese', which possibly corresponds to Yoghan-terek. [In the Sung History the character is not 家 *chia*, 'family', but 冢 *chung*, 'mound'.—Dr. L. Giles.] Five days more were occupied in crossing the mountain range, a not unreasonable allowance for the passage of so great a dignitary, if reckoned to a point at the northern foot of the T'ien-shan whence he could reach Pei-t'ing in one day (p. 62).

As Wang Yen-tê arrived at Kao-ch'ang in the fourth month (May) of the Chinese year corresponding to 982, and by the seventh month (August) of the same year (pp. 65 sq.) was invited at Pei-t'ing to prepare for the return journey to China, his passage north must have been effected in June or July. Yet he found heavy snow on the range and was assailed by torrents of rain and snow while crossing it. Where the 'hall of the dragon' (*Lung-t'ang*), situated on the pass and apparently a cave, is to be looked for I am unable to say. An inscribed stone there recorded the name of the pass as *Hsiao hsüeh-shan*, 'the little snowy mountain'.

Of the 'valley of Pei-t'ing' the narrative states that it was several thousand *li* in length and breadth. This shows that the Uigur dominion at the time must have extended for a great distance along the northern slopes of the T'ien-shan (cf. Grenard, *J. As.*, 1900, janv.-févr., p. 29). The lake near the capital, on which the envoy was entertained by the king to a musical festival, must be the marshy lake that the Russian Trans-frontier Map marks to the north-west of Guchen with the name of Ulan-nōr. I now regret not to have visited it. The abundance of horses in the region of the old Bēsh-balik of Uigur times is brought out by Wang Yen-tê's mention that a piece of silk three yards long was the customary price for an inferior horse such as sold for meat.

[7] See Julien, *J. As.*, 1847, ix. pp. 56, 64. The statement, p. 56, that the frontiers to the south-west touched the country of the *Ta-shih* or Arabs and *Po-ssŭ* or Persians is clearly an exaggeration.

[8] Julien, *loc. cit.*, p. 56, wrongly indicates a doubt as to the five inches of rain which, Wang Yen-tê states, had fallen in the year 970 and had destroyed a multitude of huts and houses. It is certain that even a lesser quantity of rain, falling within a short period, would nowadays work excessive havoc among the mud-brick dwellings of the Turfān oases.

[9] See Julien, *ibid.*, p. 57: also p. 64 relating to the Uigurs of Pei-t'ing.

[10] Cf. *ibid.*, pp. 58 sq.

of Māni, 'attended by Persian priests who carefully observe their particular regulations and declare the Buddhist books as heretical ',[11] has received striking confirmation in the discovery by Professors Grünwedel and Von Lecoq of Manichaean places of worship at Kara-khōja, and in the remains of Manichaean texts in Iranian as well as in Turkish language that have come to light there and elsewhere.

Summer migration to Pei-t'ing. When Wang Yen-tê arrived at Kao-ch'ang in May, 982, the king, whose Turkish name Arslān Kagan he correctly renders as ' Lion king ', had retired to Pei-t'ing in order to escape the heat. This was quite in accord with well-established custom of all sovereigns of Turkish stock, which, in the case of the Kushān and Turkish rulers of the Indus region, of the Moghuls of Delhi and of others, invariably led to the adoption of a summer capital in place of the original nomadic migration to pastures higher up the mountains. The extensive horse-breeding operations which Wang Yen-tê attributes to the royal family, and for which a large valley above Pei-t'ing was specially reserved, also show that the old tribal traditions were still preserved by the rulers. They were evidently favoured by the great natural facilities for pastoral pursuits afforded by the sufficiency of moisture and grazing on the north side of the T'ien-shan. Wang Yen-tê's description of the route by which he proceeded from Kao-ch'ang to Pei-t'ing has been dealt with above.[12] His references to three Buddhist temples at Pei-t'ing, two of them founded in 637, do not convey the impression that the northern capital, otherwise described as abounding in ' pavilions, towers and gardens ', was as rich in Buddhist sanctuaries as Turfān, and this agrees with what my observations at the ruined site beyond Hu-p'u-tzŭ have led me to assume.

Wang Yen-tê's account of Uigurs. Finally it deserves to be noted that Wang Yen-tê in his description of Pei-t'ing gives the Uigurs credit for being not only straight and honest, but also intelligent and capable, excelling in metal work of all sorts. That skill of this kind was probably possessed of old by nomadic races of Central Asia to a much greater extent than was formerly supposed, has been fully established by modern archaeological researches based upon discoveries widely distributed from Siberia to the areas of Europe affected by the great migrations.[13] Yet we can scarcely go wrong if in the Chinese envoy's general eulogy of these Uigurs north of the mountains we recognize also the effect already produced upon a sound Turkish stock by prolonged association with the old civilization in the oases immediately to the south.

Uigur dominion under Mongol supremacy. I cannot here attempt to trace the further history of Uigur dominion in the Turfān region, beyond mentioning those few data which have a direct bearing upon points of antiquarian interest connected with its extant ruins. The extracts from the Chinese Annals of the Sung and Mongol (Yüan) dynasties which Dr. Bretschneider has collected in his *Mediaeval Researches* show that conditions of Uigur rule over Turfān underwent no essential change right down to the establishment of the Mongol Empire, even though early in the eleventh century the principal seat of the Uigur rulers appears to have been shifted to Kuchā.[14] The mention of numerous embassies to the Sung court in the course of the eleventh century proves that relations with China were not interrupted by the establishment of the Tangut kingdom in Kan-su.[15] In the following century the Uigurs, with other tribes and states of Eastern Turkestān, passed under the supremacy of the Kara-khitai or Western Liao.[16] When Chinghiz Khān was starting on his great expeditions westwards in 1209, Barjuk, who was then the ruling ' Idikut ' (' Lord of Happiness ') of the Uigurs, joined the great Mongol conqueror, and by active co-operation in all subsequent enterprises secured himself and

[11] See Julien, *J. As.*, 1847, p. 60.

[12] See above, note 6.

[13] For interesting results of these researches, proving the far-reaching artistic influence exercised by those nomadic carriers of Central-Asian and Far Eastern crafts, see e.g., Z. de Takács, *Jahrbuch der asiatischen Kunst*, 1925, pp. 60 sqq.; 'Chinesisch-hunnische Kunstformen', *Bulletin de l'Institut Archéologique Bulgare*, 1925, pp. 194 sqq.

[14] See Bretschneider, *Med. Researches*, i. pp. 244 sqq.

[15] See *ibid.*, i. p. 243.

[16] Cf. *ibid.*, i. pp. 213 sq.

his family in the retention of his possessions.[17] On the division of Chinghiz Khān's huge empire between his sons, Bēsh-balik with Turfān passed under the suzerainty of Chagatai's branch. It was then that information about the Uigurs first reached Europe. To Friar John de Rubruck, who in 1253–5 visited the Great Khān Mangu near Kara-korum on a mission, we owe a clear indication of the mixture of creeds prevailing among the Uigurs. Though he mentions them as the first among the idolaters, i. e. Buddhists, eastwards in Asia, he also notes Nestorians and Muhammadans as being mixed with them.[18] He likewise justly recognizes the important part played by them in the literary use of Turkish speech, a part abundantly demonstrated by the manuscript remains in Uigur yielded by the ruins of Turfān.[19]

Narrative of Ch'ang Ch'un.

Whether Mongol supremacy, with its religious tolerance and the easy and constant intercourse it assured between China and Central Asia, had something to do with retarding the spread of Muhammadanism in Uigur territories cannot be stated definitely. But certain it is that Buddhism, and Taoism also, survived longer there than elsewhere in Eastern Turkestān among populations of Turkish speech. The narrative of Ch'ang Ch'un, the Taoist sage sent for by Chingiz, mentions visits that he received from Buddhist and Taoist priests on his passage in 1221 through Bēsh-balik and at some town towards Manas. But he significantly adds that west of that town there were 'neither Buddhists nor Taoists'. 'The Hui-ho (Uigurs) only worship the west (i. e. turn towards Mecca).'[20]

Late survival of Buddhism in Turfān.

The chiefs of Turfān and Bēsh-balik and their emissaries whom the Ming Annals mention from the last quarter of the fourteenth century onwards all bear Muhammadan names.[21] Yet in 1408 we are told of a Buddhist from Turfān, with his disciples, reaching the Chinese capital.[22] A notice in the Ming Annals, dating from the first half of the fifteenth century, particularly mentions, concerning *Huo-chou* 火州, by which name Kao-ch'ang (Kara-khōja) was known since Mongol times, that ' there are more Buddhist temples than dwelling-houses of the people '. We can scarcely be wrong in assuming that in this statement are included ' the ruins of an ancient city, the remains of the capital of ancient Kao-ch'ang ', i. e. the ruins of the site now known as *Idikut-shahri* or *Dākiānūs-shahri*, which the same notice, immediately after the passage quoted, describes as situated to the east.[23] That Buddhism in 1420 was still the prevalent cult in the Turfān tract is conclusively shown by the record of Shāh Rukh's embassy, which states: ' They found that in that country most of the inhabitants were polytheists (i. e. Buddhists), and had large idol-houses, in the halls whereof they kept a tall idol.'[24] At Kumul (Hāmi), too, the same record notes a fine Buddhist temple rising by the side of a mosque.

Late conversion of Islām.

The fact thus established that complete conversion to Islām took place in the Turfān area so much later than in the Tārīm basin calls for special notice here, because, from an archaeological standpoint, it has had a very important influence upon the survival in the former of remains of antiquity and upon the condition in which they are found. It allowed relics of pre-Muhammadan civilization, including objects of cult, literature and art, to exist in this territory, comparatively well cared for, to within four or five centuries of our own time and that on ground which has been continuously occupied. The same fact explains why a large proportion of those remains belongs

[17] See *ibid.*, i. pp. 249 sq., 260 sq.

[18] Cf. *ibid.*, i. pp. 262 sq.; Rockhill, *The Journey of William of Rubruck*, p. 141.

[19] ' Apud Iugures est fons et radix idiomatis Turci et Comanici '; cf. Rockhill, *loc. cit.*, p. 152.

Friar J. Plano Carpini, travelling in 1245–6 to Kara-korum, had already duly noted that the script of the Mongols was adopted from the Uigurs. Had knowledge that this Uigur script was itself derived from the Estrangelo of the Syrian Christians something to do with his erroneous attribution of the Uigurs in general to the Nestorian sect? Cf. Rockhill, *loc. cit.*, pp. 147, 150.

[20] Cf. Bretschneider, *Med. Researches*, i. pp. 65, 67 sq.

[21] See *ibid.*, ii. pp. 193 sqq., 235 sqq.

[22] Cf. *ibid.*, ii. p. 194.

[23] See *ibid.*, ii. p. 187.

[24] Cf. Yule-Cordier, *Cathay*, i. pp. 272 sq.

to later periods. It also accounts for the difficulty which in the present state of our knowledge must often be experienced in fixing the approximate date of discoveries made there, especially when they result not from systematic excavation but from 'irresponsible' digging by cultivators and others.

Continuous occupation of sites.

This difficulty of fixing chronological limits is increased in the case of Turfān remains by two causes, one connected with historical, the other with geographical circumstances. Owing to the protection that the Turfān territory enjoyed for long periods, first owing to continuous Chinese occupation and later under undisturbed Uigur rule, it was spared, as far as we can judge, any violent cataclysms that might have resulted in the complete destruction of important localities and their consequent abandonment, together with their places of worship, &c. This immunity from permanent devastation is reflected in the fact that practically all ruins of pre-Muhammadan times in the Turfān basin are found within the area of actual cultivation or in the immediate vicinity of still occupied towns and villages. It is manifest that under such conditions it is far more difficult to fix a *terminus ad quem* for all remains brought to light at particular ruins than where the sites, such as those traced along the southern edge of the Tārīm basin, when once abandoned to the desert, have never been occupied again.

Irrigation of Turfān district.

The same result follows from the fact that, owing to peculiar features of geographical position and climate, the Turfān district includes no sites that have become definitely uninhabitable within historical times through 'desiccation', i.e. lasting diminution of the water-supply needed for irrigation. The climate of the Turfān basin can be shown from available records and by the evidence of archaeological indications to have always been one of great aridity. But the comparatively close vicinity of the high range to the north, carrying permanent snow and receiving a great deal of precipitation from the distinctly moister zone beyond, causes a considerable amount of drainage to descend into the basin, either above or below the surface. Owing to a remarkable geological faulting, represented by the range of low but strikingly bold hills that rises all along the northern rim of the basin proper, from near Pichan in the east to beyond Yār-khoto in the west, most of the drainage absorbed by the glacis of piedmont gravel comes to the surface again in the form of plentiful springs whereby the most fertile portion of the basin at the foot of those hills is irrigated.

No sites abandoned to desert.

Thus the main oases of Lukchun, Kara-khōja and Turfān have remained assured of adequate irrigation; while such outlying portions of them as might have suffered through the diminution in the discharge of surface canals which probably did take place during historical times, have been saved from abandonment by the use of Kārēzes or underground canals. In the area, all below sea-level, that lies beyond this belt and descends towards the deepest portion of the depression, cultivation must at all times have been much restricted, where not altogether precluded; for there we find great salt-encrusted wastes surrounding the terminal lake-bed of the basin, now for the most part dried up (Map No. 28. c, D. 3). This explains why, in that area too, we find no ruined sites, like those beyond the end of the Niya river or those of Lou-lan, which were abandoned to the desert at a definite period and which, having remained uninhabitable and practically inaccessible ever since, have preserved for us undisturbed remains of everyday life datable within comparatively narrow chronological limits. For these reasons the ruins of Turfān sites are almost all to be found well within the limits of the living. Fortunately, however, the archaeologist may turn to the abodes of the dead, and these, as we shall see, have preserved much that those ruins cannot reveal as regards the life that was once led around them.

# CHAPTER XVIII

## AT RUINED SITES OF TURFĀN

### Section I.—AMONG THE RUINS OF ANCIENT KAO-CH'ANG

For six days after my arrival near Turfān town I was kept busy there by many practical duties, including an exchange of visits with the local Chinese officials, whose goodwill it was important to secure, and by the disposal of the accumulation of more than three months' mail, which awaited me there. During these days I was able to pay a preliminary visit to Yār-khoto and rapidly to inspect a cemetery site lying beyond the ' Yār ' to the west of the ruined town, where half a dozen old Chinese graves were said to have been opened by Mr. Tachibana. Those I inspected showed no signs of having contained objects of special archaeological interest beyond much-decayed remains of skeletons wrapped in coarse fabrics; but the examination of the small tomb chambers cut into the hard clay of the Sai, and of the narrow approaches leading down to them, furnished useful indications for the work which I was subsequently to undertake elsewhere.

Reunion of detached parties.

Soon after my arrival at Turfān I had the satisfaction of being rejoined, after two months of separation, by Naik Shamsuddīn and Li Ssŭ-yeh, who had left us at Mao-mei, and by faithful Ibrāhīm Beg, who in their company had safely transported all the antiques deposited half a year before at An-hsi. Towards the end of my halt near Turfān Lāl Singh also arrived, after crossing the mountains by the Ku-ch'üan-tzŭ route with the camels. Favoured by clear weather, he had been able to survey that portion of the range which previously, on our journey to Guchen, had remained invisible. With my party reunited, except for Surveyor Muhammad Yāqūb, I moved my camp on November 1st to Kara-khōja, which, by its conveniently central position and the easy access it afforded to a series of important sites, appeared the most suitable base for the winter's work in and around the Turfān basin. The house of Nizar 'Alī Dōgha (Darōgha), the local headman, provided a safe place of deposit for our cases of collections and for spare baggage, as well as fairly comfortable quarters.

Arrangements for Kuruk-tāgh surveys.

My first stay at Kara-khōja, which extended to November 14th, was mainly taken up with a series of preliminary tasks connected both with our archaeological and our topographical work. With regard to the latter it was important to make very careful arrangements for transport, supplies and guides, so as to enable Lāl Singh to carry out, in the face of serious physical difficulties and within the available limits of time, the survey operations assigned to him in the desert region of the Kuruk-tāgh. He was to reach Singer, the only inhabited spot in that vast area of barren ranges and plateaus, by a new route; and after establishing there a base for triangulation, to carry this south-eastwards to Āltmish-bulak, or if necessary beyond into the Lop Desert, with a view to connecting his system of triangles with some point fixed on the K'un-lun range by his triangulation of the preceding year. I was aware of the hardships which the devoted surveyor would have to face partly from lack of water (as the few salt springs east of Singer do not freeze until well into December) and partly from the inclement atmospheric conditions of the Lop Desert. The gales and subsequent dust-haze that prevail there might oblige him to wait for weeks for a chance of sighting the mountains far away to the south of the dried-up sea-bed. The detailed instructions and arrange-

ments regarding Lāl Singh's work after the connexion of his triangulation had been secured required still more care. I was anxious that he should survey as much as possible of the wholly unexplored portion of the Kuruk-tāgh which extends between Altmish-bulak and the terminal depression below Hāmi. Survey work on this forbidding desert ground would certainly be attended with serious risks, and neither my old surveying companion's indomitable energy nor the hoped-for help of Abdurrahīm and his brave camels could altogether guard against them.

Survey of Turfān basin.

No physical difficulties would have to be faced in the course of the detailed survey of the Turfān basin, which was to occupy the second surveyor during the winter months. But the arrangements for this task, too, necessarily called for a good deal of attention. Carefully determined points in the hill range forming the northern rim of the basin proper, which were to serve for clinometrical height readings, had to be selected from the outset; and appropriate measures had to be taken to obviate the risk of Chinese official obstruction with survey work which had to be carried on in a closely inhabited area and obviously could not be brought under the head of archaeological operations.[1] Curiously enough when obstruction came, towards the end of my stay in Turfān, it was not against topographical but archaeological activity that it was directed.

Track from Shona-nōr to Chik-tam surveyed.

Surveyor Muḥammad Yāqūb had rejoined me on November 5th, after having carried out satisfactorily the survey task with which he had been charged after leaving Hāmi. He had not been able to secure there any guide acquainted with the track which the Russian Trans-frontier Map marks 'from native information' as leading from the Shona-nōr depression to Lukchun. Information subsequently obtained by Lāl Singh at Deghar showed that this track, traditionally known as having been used at one time by hunters of wild camels from Hāmi, had become impracticable for more than a generation by the drying up of certain salt springs. So Muḥammad Yāqūb, in accordance with my instructions, first proceeded to the outlying oasis of Kara-dōbe (Map No. 34. B. 3), visited by me in 1907, and thence made his way, past dry Wadis descending from the north, to the terminal bed of the Hāmi drainage known as Shona-nōr. He found this, as well as the two smaller depressions of Kosh-gumbaz-nōr and Kichik-nōr linked with it, quite dry. The whole area, as seen in Maps Nos. 34. A. 3, 31. D. 3, with its far-stretching tongues of gravel Sai and Mesa-filled depressions between them, evidently exhibits the same characteristic features of ancient lacustrine basins with which the terminal basin of the Su-lo-ho and, on a much larger scale, the ancient Lop sea-bed, have made us familiar. Thence he passed over absolutely barren wastes of stone or gravel due west towards Pichan, reaching the first water and vegetation after five days, at a small spring to the south-east of Chik-tam. Considering that no ice was as yet available and that for fully ten days the little party, including a hunter from Hāmi, had to subsist on the water carried in two of my galvanized iron tanks, it was a very plucky performance. At the same time it conclusively proved that this track, a portion of which had been followed by Colonel Kozlov as a member of Captain Roborovsky's expedition, could never have served as a regular route.

Ruins of *Idikut-shahri*.

Apart from the survey arrangements above indicated, my first stay at Kara-khōja was mainly devoted to reconnaissances for the purpose of discovering those sites and ruins where, even after the labours of preceding expeditions, there still remained scope for profitable archaeological work. From that convenient base I paid preliminary visits in succession to the cemetery sites near Kara-khōja and its large sister village Astāna; to the cave-shrines of Toyuk; the ruined temples of Senghim-aghiz, Chikkan-kōl, Bezeklik and Murtuk. But, naturally, I was at first principally attracted by the remains still surviving within or quite close to the large ruined town, popularly known as *Dākiānūs-shahri*, but also and more appropriately designated as *Idikut-shahri*, the

[1] Cf. above, p. 320.

'town of the Idikut or Uigur ruler'. I had already, seven years before, on my first passage through the Turfān district, paid a cursory visit to these extensive ruins, still so imposing in many places in spite of all the destruction that they had suffered. I had then been greatly impressed by the difficulty of doing justice to their archaeological interest owing to the disproportion between the large number and size of the ruined structures and the time and means available for their examination. That Professor Grünwedel experienced the same feeling is revealed by his account of the first systematic explorations at this site carried out by him in 1902–3.

Destructive diggings.

Destruction already at that time was proceeding rapidly, through the agency of villagers digging for manure or antiques, and also of others who made a pastime of vandalism. To save remains that were as yet undisturbed from the ever-present danger of such operations meant a race in which the systematic excavator was necessarily handicapped. All the more credit is due to Professor Grünwedel and his assistants, and subsequently to Professor von Lecoq, who in 1904–5 preceded him at Turfān while in charge of the second German expedition, for the success that attended their devoted labours of salvage at this great site. Destruction had made unchecked progress ever since. It had, as already hinted above, been accelerated by the profit which, as the villagers soon realized, could be secured from the sale of antiques and manuscript remains to archaeological parties and others. The proximity of Urumchi made it a convenient market, and the Trans-Siberian Railway offered facilities even for direct trade with European centres.

Difficulties of systematic clearing.

A first rapid inspection of the site sufficed to show me how much the whole complex of ruins had suffered since my previous visit. A number of particular structures shown on Professor Grünwedel's sketch-plan, and which I well remembered, had altogether disappeared; others of large size, whose character was then still recognizable, had been reduced to shapeless mounds. The open areas completely cleared of ruins and brought under cultivation had considerably extended. There had been a corresponding increase of damage from damp to whatever remains might still survive in the structures surrounded by, or closely adjacent to, the heavily irrigated fields. I was thus reluctantly led to the conclusion that unless time and means were made available for the complete systematic clearing of large ruined mounds that marked important groups of shrines or monastic buildings, the chances of hitting upon structures not previously searched and hence likely to yield interesting finds would be very slight. For extensive excavations of this kind it would have been quite impossible at the time to secure the requisite large gangs of labourers; for all the village folk were then busy with harvesting, while early in the new year manuring, clearing of irrigation canals, and other preparations for spring sowing made an almost equal demand upon labour. I had here a practical demonstration of the radically different conditions of climate and cultivation that prevail in the Turfān depression and in the oases of the Tārim basin. The amount of labour I could raise in the latter for excavation work during the winter months was in practice limited only by the number that I could manage to keep supplied with water at desert sites.

Survey of *Idikut-shahri* site.

These considerations, together with the desire to reserve time for work at other Turfān sites, induced me to limit myself at Idikut-shahri to a few experimental diggings, such as could be carried through with the few men available. I hoped by them to obtain some knowledge of the condition in which the antiques excavated by villagers and offered for sale would probably as a rule be found. In connexion with these reconnaissances, I had the plane-table survey of the site, from which the sketch-plan, Pl. 24, is derived, carried out by Muḥammad Yāqūb and Afrāz-gul. The object in view was mainly to show with approximate correctness the shape and size of the circumvallated area of the ruined town and to make it possible to mark within it the position of the ruined structures at which some excavation was done. An endeavour was also made to indicate the situation of other structural remains still clearly recognizable as such; but as many among them had been reduced

at the time of our visit to the state of mere mounds, and as the condition of my injured leg made it impossible for me personally to direct measurement at more than a few of the many ruins, the dimensions shown for individual structures cannot claim to be more than rough approximations. Nevertheless, I believe this rough survey of the town site, as it presented itself at the time, will be found useful, as the rough sketch-plan published by Professor Grünwedel shows no scale and professedly was made only for the purpose of personal orientation.[2]

Experimental clearing at ruin Kao. I.

The first place chosen for some experimental clearing was the south-eastern corner of a large complex of buildings, in great part demolished, marked I in the plan, Pl. 24.[3] Their arrangement around a central court containing on the west side the remains of what looked like the high base of a completely wrecked temple suggested a monastic establishment of importance. The Manichaean MS. fragments, Kao. 0107–110, which I purchased, including a Runic Turkī fragment with remains of a miniature painting, were said to have been found in the large apartment marked i. We were rewarded for the clearing done here only by a small piece of a text, apparently Manichaean, in Sogdian script, with some Chinese manuscript fragments, and a small embroidery fragment, Kao. I. i. 01, showing a much-discoloured floral design.

Along the foot of the badly decayed western wall of what appeared to have been a large hall, Kao. I. ii, approached from the same central court, we recovered a large number of fallen fragments of well-designed tempera paintings, which had once decorated that wall. On the wall itself some badly faded fresco remains were found, showing the drapery of what was apparently a colossal standing Bodhisattva figure and of another smaller one seated. Among the fallen fresco pieces which the List below fully describes but which must await illustration elsewhere, fragments of floral decoration are particularly numerous. We evidently have representations of donors in the fragments I. ii. 08, 10, 57–8, which show the heads and shoulders of a man and a woman side by side, and in the fragments I. ii. 016, 051, which retain portions of female heads with a peculiar coiffure. Remains of Uigur inscriptions appear on I. ii. 017 and some other fragments. Among other finds made here I may mention pieces of coarse tapestry, I. ii. 075. a (Pl. LXXXVII); a wooden comb, I. ii. 074 (Pl. LXXI); small fragments of Uigur, Chinese, and apparently also Sogdian manuscripts, and five Chinese copper coins all with the legend *K'ai-yüan*, current during the T'ang period.

Finds in ruin Kao. II.

The place next selected for trial excavation was a spot close to a small projection of the eastern town wall within which Professor Grünwedel had explored the Buddhist temple marked by him as *V*.[4] At a distance of about 120 feet to the north-west of this shrine the diggings of cultivators had laid bare remains of what apparently had been a vaulted cella or passage, Kao. II, built against the town wall. The adjoining eastern wall, which alone survived, of this structure showed traces of fresco work above the accumulation of debris wherewith the interior was filled to a height of about 6 or 7 feet. The removal of this disclosed the extant portion of a wall, about eleven feet long and standing to a height of close on twelve feet. Lower down, the stucco surface of the wall,

[2] See Grünwedel, *Idikutschari*, Fig. 2, with the general observations, pp. 7 sqq., 13, as regards the conditions under which his work had to be done.

It may be conveniently noted here that the extant circumvallation of Idikut-shahri, as well as the remains of an obviously earlier system of town walls traceable within the enclosed area, is for the most part built of stamped clay, set either in the fashion of thin layers, as usual in Chinese construction of this type, or else of large *pisé* blocks such as are customary in the modern building practice of Turkestān.

The use of sun-dried brickwork is not as common in the town walls as might be suggested by *Idikutschari*, p. 8, note 1. It is, as far as I could judge, principally confined to repairs of a later date.

[3] This complex of buildings probably corresponds to the big monastery which Professor Grünwedel marks with the Greek letter $\chi$ and briefly refers to, *ibid.*, pp. 105 sq. The gallery with fine but much-injured frescoes mentioned by him was no longer traceable.

[4] See Grünwedel, *ibid.*, pp. 41 sqq.



303. RUINED SHRINES, M.C., AT MURTUK, TURFAN.



304. GENERAL VIEW OF NORTHERN GROUP OF RUINED TOMBS, KOSH-GUMBAZ, KARA-KHŌJA.



305. RUIN, M.B. I, AT MURTUK IN COURSE OF CLEARING.



306. TOWER OF YOGHAN-TURA EAST OF KHANDŌ, SEEN FROM SOUTH-WEST.



307. RUINED TOMBS AT SOUTHERN GROUP, KOSH-GUMBAZ, KARA-KHŌJA.



308. RUIN OF SEPULCHRAL STRUCTURE, KAO. III, AT KOSH-GUMBAZ, KARA-KHŌJA.

all of which had probably once been painted, had disappeared, but at a height of about three feet from the floor parts of a fine fresco composition were recovered and safely removed. An account of them must be left for a later publication. The western wall had been completely destroyed and the dimensions of the cella or passage could not be determined. The only find made in the course of clearing was the fragment of a Chinese inscription on a burnt clay slab, Kao. II. 01, the longest of the six lines of which still contained eight characters. It has not yet been interpreted. A small room which adjoined the cella to the north, measuring about twelve feet square, retained only scanty traces of frescoes on its badly broken walls.

Our other clearings were made in the remains of structures which, being agglomerations of small vaulted rooms, closely resembling the ground-floor *kemers* of modern Turfān dwellings, could easily be recognized as quarters. Two of these, Kao. IV, V (see Pl. 24), in the south-eastern portion of the town, being situated in the vicinity of some large and much-dilapidated temple ruins, may have served for the accommodation of attendants or pilgrims. In Kao. IV the clearing of the northernmost 'kemers' yielded only the well-preserved iron arrow-head, Kao. IV. 01 (Pl. LXXI). In Kao. V, a structure situated about fifty yards to the north (see plan, Pl. 25), three vaulted rooms filled with debris were cleared. The objects discovered here included eight wooden pegs of small size, Kao. V. 02–9 (Pl. LXXI), two of them bearing a few Uigur characters, evidently resembling those pegs which Professor Grünwedel mentions as still used in Lamaistic sacrifices;[5] fragments of combs, V. 01, 014–15, and miscellaneous textile remains, among which the figured silk, V. 018. c, with a scrolled pattern, and the piece of woollen tapestry, V. 019 (Pl. LXXXVII), showing a conventionally treated leaf-and-stem design, may be specially mentioned. Finally, in clearing small decayed quarters built at two points on the northern town wall, Kao. VI, VII, some small fragments of Uigur manuscripts and large pieces belonging to one or two Chinese documents were recovered.

Finds in small vaulted rooms.

Among the ruins outside the walled town the most conspicuous are the two groups of sepulchral monuments, situated to the south of the high road where it passes beyond the north-eastern corner of Idikut-shahri towards Toyuk and Lukchun, and commonly designated as Kosh-gumbaz. Professor Grünwedel has furnished sketch-plans of both groups and described the interesting constructive details of the Stūpa-shaped hollow domes which are striking features of this necropolis.[6] Though some of them, as Fig. 307 shows, have outwardly suffered less than most of the ruined shrines within the walls, their interior decoration has everywhere been long ago destroyed and the contents rifled. This has also been the fate of the numerous graves near them, the approaches to which were found all dug up, indicating exploitation at one time or another.

Ruined tombs of *Kosh-gumbaz.*

At the northern and more extensive group (Fig. 304) the much-decayed ruin of a Stūpa attracted my attention by its large size and octagonal shape. With its enclosing walled court, it forms the south-western corner of the group and appears duly marked (*e*) in Professor Grünwedel's sketch-plan.[7] As a first superficial examination revealed small fresco fragments lying near the top of what remained of a circular wall on which the dome once rested, I decided upon a careful excavation of the masses of debris surrounding the well-like interior of the ruin (Fig. 308). This soon disclosed a marked difference in constructive plan between this Stūpa and the others. The circular wall, 5½ feet thick, that enclosed the tomb chamber and supported the dome above it, was found to be separated by a narrow passage from an outer enclosing wall, a little over 6 feet thick, which continued the octagonal outlines of the base, as shown by the ground-plan in Pl. 25. Though this outer wall still rose to a height of over 12 feet above the debris covering the floor of the circular chamber within, no definite indication was found as to the superstructure that it must once have carried. There can, however, be little doubt that this superstructure was domed and contained

Sepulchral structure, Kao. III.

[5] See Grünwedel, *ibid.*, p. 60.
[6] See *ibid.*, pp. 110 sqq.
[7] See *ibid.*, p. 113.

windows; for thus alone could the passage round the circular interior wall have received its lighting. This supposition is borne out by the presence in the circular wall of eight small arched windows about 10 inches wide, at a height of about a foot from the floor of the passage, giving on the interior, and each opposite to a corner formed by the octagonal facets of the outer wall. That the interior once had a double vaulting, as found in other Stūpas of Kosh-gumbaz,[8] is made probable by another set of eight 'windows' which penetrate through the whole thickness of the base, 14 feet, into the inner chamber, at a height of about 3½ feet above the ground level and about as much below the floor level of the passage. These windows were 2 feet 3 inches wide outside, reaching a height of 3 feet with their arched points. At about a foot and a half from their inner end these window passages appeared to have been partially blocked by brickwork, perhaps used in 'pinjory' fashion.

Passage round circular wall.

In the course of clearing the passage a considerable number of fine fresco fragments were recovered which evidently had belonged to a painted frieze higher up. None of them were found less than 5 to 6 feet above the passage flooring, which suggests that the walls of the passage below this level had been left without decoration. Some of the fresco fragments were found lying one in front of the other, as if they had slid down successively, as had happened with the frescoes of the Mīrān shrine M. III.[9] The entrance to the passage, if it had one, must have been from the south; but there both the octagonal outer and the inner circular walls showed a big breach, made, no doubt, by those who searched the sepulchral structure after it had become a ruin. Against the south-eastern facet of the base was built a small annexe, originally double-storied, containing on the ground floor two vaulted rooms, each 15 feet long. The one nearest to the sepulchral structure was only 5 feet wide and may have once contained stairs leading to the upper rooms; but this could not be determined. The fact that the enclosing wall of the quadrangular courtyard, against which the annexe was built, stood on this side 18 feet away from the main structure and only 4 feet away on the opposite side suggests that the annexe was contemporary with the former. In this case it may possibly have served as a convenient place for performing funeral rites or keeping articles needed in connexion with these, &c.

Textile remains, etc., from Kao. III.

That the sepulchral structure itself had at some later period been put to use as quarters or as a storing-place appeared probable from a large layer of straw and brushwood that came to light at the bottom of the western portion of the passage. We also found there a large but torn sheet of paper with Chinese writing, apparently a commercial document; fragments of leaves with Brāhmī and Uigur writing; and some small wooden slips, one bearing Uigur script. A leaf with some fragments in Uigur was also recovered on the floor of the eastern side of the passage, besides textile remains, including the pieces of printed silk, Kao. III. E. 01. a, b (Pl. LXXXVI) and the fragments of silk tapestry, Kao. III. E. 02. a. Other objects found here were the wooden weighting board of a small banner, Kao. III. 061, and the black-lacquered inkpot Kao. III. E. 03 (Pl. LXXI).

Fresco remains from passage.

Quite distinct from these remains is the large hoard of metal objects which was unearthed on the north-eastern side of the passage, well above the floor. Before, however, turning to this *cache*, brief reference may be made here to the remains of the original fresco decoration of the passage, which are fully described in the List below but await illustration. The two largest pieces, Kao. III. 019–20, each close on two feet in length and about one in height, show the figures of male donors kneeling in front of altars or pedestals with sacred emblems (?) and accompanied by remains of Uigur inscriptions. Some of the bearded heads preserved show interesting details of features and head-dress which may help towards an approximate dating. Among the smaller fragments, Kao. III.

[8] Cf. Grünwedel, *Idikutschari*, p. 111.

[9] See *Serindia*, i. p. 498.

021–58, which belong to the composition that once stood above the lower frieze representing donors, it is possible to distinguish certain groups, such as demons attending to a caldron amongst floating flames; a spotted dragon; floral scrollwork, &c.

The large and very interesting hoard of metal objects already referred to was discovered on the north-eastern side of the passage close to the outer wall and on a level nearly five feet above the floor. This clearly proves that when it was deposited, the interior of the passage must have been already filled to this height with debris from the vaulting and walls. The character of the objects and in particular the heap of broken pieces of iron and bronze belonging to different vessels, implements, &c., that formed part of the *cache*, leave no doubt that the person who placed it in the ruined structure hidden under debris was a metal-worker. As originally deposited, we found lying close together in the *cache* the four bronze caldrons, Kao. III. 04–7 (Pl. LXX), placed nest-like one inside another; the bronze cooking-pot, 09 (Pl. LXX), filled with a mass of copper coins, small objects in bronze, silver, &c., and covered over with the iron casque, 0105 (Pl. LXX); two bronze mirrors, bronze bowls and iron (?) saucers, a spear-head, knives, and a heap of small miscellaneous metal objects and fragments, such as might have been hurriedly gathered up in a workshop to which they had been brought for repair, sale, or simply as 'old iron'. A little apart, but lying together in the same layer, were found the pair of neatly decorated fabric slippers, 03 (Pl. LXXXVIII), and another of goloshes, 063 (Pl. LXXXVIII), elaborately worked in different cloth materials. *Cache* of metal objects.

What invests this deposit with special antiquarian value is the fact that it comprises many objects of everyday use and that its date, owing to the large number of coins found with it, can be determined with approximate certainty. With regard to the former point, it will suffice to observe that finds of household implements and the like must needs be comparatively rare at ruins within an area, like that of the Turfān oases, which has never ceased to be occupied, and particularly among ruins of religious structures such as are most of the remains of Turfān sites. Such discoveries as this are therefore all the more welcome. For the same reason the clearness of the chronological evidence supplied by the coins deserves to be specially appreciated. Out of a total of 61 Chinese copper coins, many of them in very fair preservation, the list given in Appendix *B* shows that 39 belong to different T'ang issues, while the rest bear Nien-haos of the Sung period, ranging from *Shun-hua* (A. D. 990–5) to *Ch'ung-ning* (A. D. 1102–7). As more than half of these Sung coins have the latter Nien-hao but little worn, the numismatic evidence clearly points to this *cache* having been made about the first quarter of the twelfth century. Date of deposit.

Since all the objects contained in the deposit are fully described in the List below, I need only here briefly call attention to the more interesting among them. The four bronze caldrons, Kao. III. 04–7 (Pl. LXX), ranging from about 8¼ to close on 13 inches in diameter, though in good condition generally, have holes in them or lack handles, which suggests why they found their way into the hands of the metal-worker—or dealer in old things. The same applies to the bronze bowls, 0104, 0106 (Pl. LXX); the cooking-pots, 08–9 (Pl. LXX); the cast bronze bell, 017, 082–6, found broken into several pieces, and the numerous steel knife blades, 0169–74 (Pl. LXXI). Of more interest are the bronze mirrors, 01–2 (Pl. LXXI). The first, of which the ornamented reverse has suffered much from wear, had, when found, its face protected by a circular brass cover; this however looks as if it had been in need of fitting. The other brass mirror has its reverse ornamented with a raised design in Chinese style, which shows in spirited execution a minstrel playing before dancing boys in a rural setting. The design on the obverse of the bronze disc ornamented in *champlevé*, 011 (Pl. LXXI), is likewise Chinese; it displays a flaming-haired three-headed divinity faced by two worshipping demons. The saucers of thin metal, 099–103 (Pl. LXX), with sides stamped into scallops, &c., obviously were meant for table use. The two iron padlocks, 0167–8 (Pl. LXXI), are complete Bronze vessels, &c.

and work on a system of which Japan supplies examples in the Shōsōin and which is still in use there.

Among objects of military equipment represented, we have the iron casque, 0105 (Pl. LXX), which is provided with holes for the attachment of a chain-mail curtain such as appears on clay figurines from Turfān graves, and has on its top a domical piece intended to hold a spike or crest; the spear-head of steel or wrought iron, 010 (Pl. LXX), which retains its long socket; and the small javelin-head, 0180 (Pl. LXXI). Whether the small sheet of 'wired' bronze, 0110, formed part of armour, is doubtful. Iron loops such as 012, 0179, and attachments like 0194, 0200 (Pl. LXXI), probably belonged to harness, and some similar purpose may be assumed for the numerous rings, bosses, &c., in bronze and iron.

Objects of personal use.

Small objects of personal use in silver had also found their way into the *cache*. Thus we have the silver amulet case, 0136 (Pl. LXXI), decorated on both faces with a floral design in relievo, and retaining a neatly worked chain partly in silver, partly in iron wire; and the small silver figurine of a nude male, 0137 (Pl. LXXI), also intended for suspension. Two brass seals, 0176–7 (Pl. LXXI), show Chinese lapidary characters. Finally, the two pairs of shoes found near the metal objects deserve special notice. The embroidered lady's shoes, 03 (Pl. LXXXVIII), are of truly exquisite workmanship. They are made up of tapestry pieces remarkably strong in weave and still retaining their brilliant colours, and show elaborately embroidered floral ornaments. The other pair of shoes, 063 (Pl. LXXXVIII), which, judging from their shape, appear to have served a purpose corresponding to that of goloshes, are also elaborately worked with several superimposed layers of fabrics and decorated with appliqué bands displaying patterns in silver thread and corded silk.

Antiques acquired.

There remain to be briefly mentioned the miscellaneous objects which I was able to acquire, during my successive stays at Kara-khōja, from local cultivators or from petty dealers who collected antiques from the former. There can be little doubt that the great majority of these objects had been found, as asserted by the sellers, by persons digging for earth—or treasure—among the ruins of Idikut-shahri. The character of the objects, most of which may safely be ascribed to Uigur times, supports this view. A few, however, may perhaps have been obtained from tombs recently rifled in the extensive graveyards of Astāna to be described below. The reason why the supply of objects brought for sale was not more abundant may have been that the most active season of digging for manure had only just started when we left Turfān; to some extent also I may have been forestalled by agents collecting for purchasers in Europe.

Illuminated Manichaean MS. fr. on parchment.

The majority of the antiques acquired consisted of manuscript fragments on paper in Chinese, Brāhmī, and Uigur scripts. These together with some fragments in Sogdian and Runic Turkī, presumably Manichaean, will be found inventoried elsewhere. Among the miscellaneous small objects described in the List below, the following may be specially noted here. Pictorial remains of distinct interest are the fragment of an illuminated Manichaean manuscript on parchment, Kao. 0111 (Pl. LXXVII), and the fine coloured block-print on paper, Kao. 05 (Pl. LXXIII). The former, unfortunately torn and partly defaced, shows rows of worshippers, male and female, kneeling in two registers and wearing brilliantly coloured dresses. The particular interest of the fragment lies in its material, the use of leather being extremely rare for Manichaean texts and repugnant to the Manichaean mind, as Prof. von Lecoq kindly informs me. He believes that the fragment is likely to have belonged to a MS. brought from the West, where paper was not available. This opinion is borne out by the fact that the text, according to the reading and translation obligingly furnished by Dr. W. Lentz (App. *R*), is in the south-western variety of Sogdian.

Coloured block-print.

The block-print, coloured by hand, represents two Chinese jugglers in elaborate costumes performing on a bench. It is purely Chinese in style and a composition of considerable artistic

merit, remarkable for the lifelike ease with which the animated poses are rendered, and for the freedom of the drawing in all details. There is nothing to afford a definite indication of date; but judging from external conditions the print was probably found in a tomb. From tombs may possibly also have come the two bronze mirrors, 01 and 034 (Pl. LXXI), the former showing on its back a Chinese landscape in very low relief and the latter four Chinese lapidary characters. The small stucco head of a woman, 024 (Pl. LXIX), is probably from a similar source. Among small stone carvings the jade 'Netsuki', 02 (Pl. LXXI), representing a reclining dog, and the jade fish, 013 (Pl. LXXI), are manifestly of Chinese workmanship. The steatite mould of a heart-shaped leaf, 016 (Pl. LXXI), probably served for producing metal ornaments. Bronze objects of interest are the mace-head, 028 (Pl. LXXI), resembling one found at Yōtkan, and the prism-shaped ornamented weight, 031 (Pl. LXXI). The fragments, 011 (Pl. LXXXVII), of a fine bamboo matting, interwoven with a figured silk, closely resembles the manuscript-roll covers of similar make from the 'Thousand Buddhas' and may have served the same purpose.

Search for alleged ruins in *Kuruk-aghiz*.

During my first stay at Kara-khōja I took occasion to test a persistent rumour that ancient ruins never yet explored were to be found in the rugged outer range overlooking the oasis from the north-west. I had already heard of them in 1907, when they were said to be hidden in the barren hills to the south-west of Murtuk. Again, on my passage through Pa-no-p'a, Aḥmad, the ill-fated rebel, stated that he had seen them once, while hunting in the hills about the gorge known as Kuruk-aghiz. He had offered to guide me to them—once he had made his peace with the Chinese local authorities. Several men of Kara-khōja, no doubt eager for a new ground to search for treasure or antiques, offered themselves as guides to Kuruk-aghiz. So I let Afrāz-gul proceed to that valley, provided with a sufficient supply of water to permit of a prolonged search in that barren wilderness of eroded hills. The valley was found to debouch to the north of Sai-langar, a resting-place on the road from Turfān town to Sengim-aghiz (Map No. 28. c. 3), and to be formed higher up by a maze of deep-cut and extremely narrow gullies.[10] But two days' thorough search of them, carried right up to the watershed above Murtuk, failed to reveal any trace of former occupation.

In the light of subsequently gathered information it became clear, in fact, that the alleged ruins were but the local *pendant* of those legendary 'old towns' in the desert that haunt the imagination of people in certain of the smaller oases along the northern edge of the Taklamakān. Those 'old towns' once sighted by adventurous hunters, &c., can never be found again; for the magic of evil spirits is supposed to hide them, when searched for. Just as in the case of the *Kōtek-shahri*, in search of which Mūsā Ḥājī of Korla had led me in January, 1908, into the desert north of the Inchike-daryā,[11] the motive prompting our Kara-khōja informants had obviously been the hope that my own European magic would prove superior to the wiles of the local demons and reveal to them a new and rich site to exploit.

[10] Afrāz-gul's camp ccxx. a. marks the highest point in the valley up to which it was possible to take laden ponies or donkeys.

[11] Cf. *Serindia*, iii. pp. 1232 sqq.

## Section II.—LIST OF ANTIQUES EXCAVATED, OR ACQUIRED, AT KARA-KHŌJA

### MISCELLANEOUS OBJECTS PURCHASED AT KARA-KHŌJA

**Kao. 01. Circular bronze mirror,** with scalloped edge, and handle at one side; cast. *Obv.* blank. *Rev.* Edge with flat border, raised. Centre, design of duck on water (?) with bank and flowers, all in very low relief. Junction of handle with plaque, a lotus half open, the tang forming stem. Well preserved. Diam. 2⅝". Thickness ⅛". Tang 1" long. Pl. LXXI.

**Kao. 02. Jade 'Netsuki';** light buff, in form of reclining dog, with rather pug face, bulging eyes, large ears and bushy tail. Forelegs and shoulders broken away. Fairly well carved and polished. 1⅝" × 1 3/16". Pl. LXXI.

**Kao. 03. Bronze pendant,** cast, with loop for hanging. Pear-shaped with volute in relief R. and L., and calyx spreading below, from which issues a bud. Bold relief. Back hollow. 2" × 1⅜". Pl. LXXI.

**Kao. 04. Bronze ornament,** T-shaped with raised boss at crossing. Details smothered in corrosion. Back hollow. 1⅜" × 1" × ⅛".

**Kao. 05. Fr. of block-print on paper.** Subject: two Chinese male dancers or jugglers, ¾ to L., perform, presumably to spectators, on narrow trestle bench drawn in perspective receding at about 30° from R. to L. Each end of bench is supported on two thin legs diverging downward and joined by two rails.

(*a*) Figure at near end of bench is in dancing pose of great though tense animation. L. foot is planted on bench, R. leg drawn up sharply with knee directed outwards to R. and foot towards inner side of L. thigh. Head held down and forward between hunched shoulders. L. arm drawn up tightly, elbow projecting outward to L. and hand behind back. R. arm thrust vigorously straight down and slightly across body; fist clenched and turned inwards to girdle. Above R. shoulder projects hilt and part of blade of Chinese sword, touched with blue, which is perhaps held by lower end of blade in L. hand behind back.

Head carries elaborate ornament composed of close-fitting narrow metal (?) coronet with eight-petalled rosette in front, partly surrounded by half-hoop of detached beads. From top of rosette springs a real (?) pink chrysanthemum. Rising from, and attached to, coronet, are spreading flat quadrangular panels of which two are visible, joined at their edges, forming a high polygonal. Crown (cf. Vaiśravaṇa's headdress, *Ser.*, iv. Pl. LXXII) worn rakishly. Each panel contains a vague device and is black-bordered; studded with beads; other beads stand out from corners and side edges. At R. of face is large bunch of pink flowers (peony ?).

Coat is loose fitting with full skirts to just above knees, and is fastened across body kimono fashion. From L. armpit to R. side of waist is a band of fret ornament with thin blue line at upper edge; below, at about distance of width of fret band and parallel to it, another partly visible. Above, crossing breast, is broad band of four widely spaced seven-petalled rosettes with pink centres surrounded by blue line. A fifth similar rosette appears above, at front of R. breast, being probably part of another band; it is divided from first flower band by two parallel lines. Over each shoulder a band of fret.

Sleeves, rather short, are full at upper part, narrowing to close-fitting white (?) cuffs, rolled back. Enclosed palmettes with blue field form gauntlet shape decoration. Thin girdle encircles waist and below; round hips is broad blue and white banded sash, an end of which hangs swaying in front of L. leg nearly to ankle. This free end is decorated at its upper part with cloud scroll or dragon and below with transverse lozenge border from which hangs long fringe with three rows of knots at its upper end.

Short thin scarf is wound loosely round neck, grey ends hanging at either side of breast. Loose pink pyjamas have their ends tucked into tops of soft Chinese boots. Boots have band of fret ornament bordered by blue lines round tops, below which is plain band. Uppers decorated with sketchy palmettes on blue ground. Goloshes panelled blue with white borders.

Face is youthful, of Chinese type with full cheeks, narrow forehead and eyebrows placed high and sloping well up at outer ends. L. ear large and prominent. Face painted with pink body-colour shaded with pink.

(*b*) Second figure, at farther end of bench, is standing on his doubled fists placed close together, his back towards spectators and head turned outward in same direction. Legs close together, curving over to maintain balance. It is the ordinary tumbler's pose when standing on the hands, with the difference of the fists being doubled, throwing weight on knuckles.

Costume is adapted to the rôle. It consists of short grey tunic shaded blue at edges, confined by girdle at waist; short sleeves with rolled back cuffs, the outer side of sleeve laced and ornamented with row of tags or buttons as on a toreador's jacket. Loose-fitting pyjamas patterned with five-pointed palm or bamboo leaves, *semé*, and tucked into boots similar to those of first figure, but differently ornamented. Point of sword projects from waist, upwards to R. On head is bound a grey cloth or cap, which falls backward like long 'smuggler's cap'.

Ears covered by long erect artificial pink ears or brush-like tufts of hair, such as are sometimes worn by French clowns. Face is more rugged than that of his companion; eyes less oblique, nose broader, mouth and chin larger; painted pale pink body-colour, shaded with pink.

An outline block only seems to have been used, printed in black with the fine freedom in the quality of line usual in Chinese prints. Body-colour of faces has been laid over

printed black lines, turning them grey; the eyes afterwards reinforced with black, and eyebrows with grey, brush work. This is also used freely to soften contour lines and give additional folds to drapery.

Paper is double, of wove texture, discoloured to dark buff and much fly-marked. All edges torn or rotten; R. heel of second figure and farther trestle of bench missing; two large holes eaten through near figures. A sharp knife-cut has divided the picture (now joined) between figures. R. edge, best preserved, has strip of paper pasted over it, either marking the connexion with a continuation, or denoting the limit of picture in that direction or both. Very fine design. H. 13", width 7 3/4". Pl. LXXIII.

**Kao. 06–9. Three frs. of painted paper.** Three frs. and one of cursive Uigur (?) script. Painted pieces backed with crimson silk.

Largest piece, composed of two of the frs. Two donors (?), male and female, kneel 3/4 to R. p., the man with close-cropped black hair, hands together, and dressed in robe of Buddhist monk. Woman, to his L. p., in red dress and probably long hair. They turn towards a red throne (corner only present) above which portion of red-robed figure (?) on green lotus. Above, a robed figure, nimbate, in attitude of adoration. On smaller fr. two heads and part of third, nimbate, of adoring figures. Traces of other figures on all three frs. Very ragged and defaced. Drawing delicate and good. *06 + 07*, 2 pieces together 4 1/4" × 5 3/4". *08*, 1 piece 1 1/4" × 3". *09*, script 3 1/4" × 2".

**Kao. 011. Frs. of fine bamboo matting.** Made of split strips of bamboo with alternate strands of silk laid side by side as a warp and bound together by closely woven weft of silk yarn, as in *Ser.* iv. Pl. CVI, MS. roll-cover Ch. xx. 006, and ii. p. 1014, Ch. iii. 0012. a–b. Weaving here covered whole of mat. Ground yellow, with symmetrical cloud scroll and floral pattern, in blue green and plum colour, arranged in bands, now hardly distinguishable. Brittle. All frs. *c.* 4 1/2" wide, gr. length 2". Pl. LXXXVII.

**Kao. 012. Stucco** and wood, colossal R. hand, gilded; fingers extended, index finger advanced slightly in front of others. Fingers with long nails all made of wood, each a separate piece; their thick rough roots inserted into a hollow 'fibrous' stucco palm, and strengthened by extra bandages of canvas round junctions and palm.

This hollow palm, a mere shell, seems to have been made on a mould, and is coated with *c.* 1/8" white plaster, perfectly smooth and gilded. The mould would seem to have been of the nature of a movable core, and the external plaster to have been applied after the fingers were in position. Fingers coated very thinly as they are fully modelled in the wood. The whole represents a completely worked out technique. 12 1/2" × 7". Pl. VIII.

**Kao. 013. Jade fish;** carp (?). Short thick body, with broad slightly upcurved tail; fins, eyes, &c., indicated by incisions. Pale green mottled with black. Length 3 1/2", H. 1 3/4". Pl. LXXI.

**Kao. 015. Bronze ornament;** oblong plaque or thin foil, with winged beetle or butterfly in high repoussé in centre. 1 9/16" × 1 3/16". Pl. LXXI.

**Kao. 016. Steatite mould** of heart-shaped leaf, dull greenish-grey, with incised midrib and veins, and raised edge. Hole sunk at base of midrib, but not pierced through. Prob. used for moulding in thin metal foil. Length 7/8", gr. width 5/8", thickness just over 1/8". Pl. LXXI.

**Kao. 017. Fr. of jade ornament.** Portion remaining suggests pair of pomegranates (rather unequal in size) parting from top of common stem. On under surface of each are small incised leaves, with veins and midrib; and on tip of one, small projecting growth. Traces of stem broken off below. Rough irregular work. H. 3/4", width tip to tip 1 1/4". Pl. LXXI.

**Kao. 018–19. Two frs. of glass;** inferior, greenish, semi-translucent. Gr. M. 13/16", thickness 1/8".

**Kao. 020. Elliptical bronze strap-loop** (?); with hollowed back from which project three short pins. Corroded. 13/16" × 11/16".

**Kao. 023. Wooden seal;** oblong block with shank at back pierced for string. Fret design in relievo on face. 1 3/16" × 15/16" × 1/2" to 3/4". Pl. LXVI.

**Kao. 024. Stucco woman's head,** in round. Very fine fibrous stucco, with wooden core which projects through fracture at top. Hair black with traces of gilding, drawn up at back and done in plain topknot. Ears not shown.

Face delicately modelled, with full cheeks and small mouth; narrow slanting eyes shown by painting in black and only slight modelling. Nose rubbed off. Flesh painted white with red on mouth, pink on cheeks, and yellow and red flower (?) on forehead. Surface worn. H. 2 1/2". Pl. LXIX.

**Kao. 025–7. Three frs. of wooden relief carving** (subsequently broken into smaller pieces). Part of open-work floral panel or frieze, showing curving leaves with curling pointed, or rounded two-lobed, ends; not much detail. Edges of leaves chamfered towards inside or out, and gilded. Remains of white priming and bright or dark red paint over surface. Insect-eaten. Gr. fr. (*025*) 10" × 4 1/2". Pl. LXVI.

**Kao. 028. Bronze mace-head,** cast solid. Main part of head forms in plan (outline) a quatrefoil imposed on a square; the quatrefoil being formed of four four-sided pyramidal points, which project horizontally from the four sides of central rectang. body. But these sides are themselves cut inwards to give more prominence to the leaves of the quatrefoil, so that the eight (upper and lower) corners of the rectangular body form in their turn eight short three-sided pyramidal points.

A simple ring moulding connects head—below, with short round tang or shank; above, with dome-shaped member which expands again into small mushroom knob. Cf. *Ser.* iv. Pl. VII, Yo. 0081. Good condition. H. 2 1/4", gr. diam. 1 1/4". Pl. LXXI.

**Kao. 029. Wooden ladle,** with round flat-bottomed bowl, and straight flat handle projecting at right angles on side. Cut in one piece. Handle widens slightly and is then cut to point. In bottom of bowl, scrap of Uigur paper MS. Hole broken through bottom. Length of ladle 7", diam. of bowl 3⅜". Pl. LXVI.

**Kao. 030. Clay stucco human foot;** sole upwards in position of kneeling or flying. Hard, and with remains of pink paint. 2"×1¼". Pl. LXIX.

**Kao. 031. Bronze weight,** in form of octagonal prism; punch-marked on both octagonal faces with a broken square of dots, within centre of which a quatrefoil and another in each corner (five in all) indicating perhaps the weight value. On edges, between bands of dots a chevron of dots. Weight 3,146 grains troy. Diam. 1⅞", height 13/16". Pl. LXXI.

**Kao. 032. Bronze figure of Bodhisattva,** in relief with long tang at lower end, and short bent shank behind head. Figure standing on lotus; drapery like long feathers; hair in curls hanging to shoulders; pose of hands, teaching. 3"×1". Pl. LXXI.

**Kao. 034. Circular bronze mirror,** with raised edge and centre boss pierced for cord. Four Chin. lapidary characters placed crosswise in sunk space between edge and boss. Roughly cast. 2¼"×¼". Pl. LXXI.

**Kao. 035. Fr. of stone duck-charm.** Bird has head in profile to R. and ruffled wings. Cut flat, with eye and feathers indicated by rough incisions. Hole drilled by (present) R. edge, where fr. is broken off. H. 13/16", gr. width 1". Pl. LXXI.

**Kao. 058. Fr. of card,** with block impression of large head in centre, with small round hat and lines radiating downwards to represent beard or body. Below a pavement (?) represented by a series of black dots and in foreground ¾ length figure in black robe. Heavy black border line with thin inner line.

Upper part torn away. Back covered with hexagonal diaper with six-petalled rosette in each hexagon, printed or painted in grey. Perhaps one of a set of playing cards. 2¾"×1¼".

**Kao. 0111. Fr. of illuminated Manichaean MS.;** parchment, torn at all edges; Sogdian. *Obv.* part of two rectangular registers painted with devotional figures. Lower register: row of female figures kneeling and facing ¾ to their R., each clasping in both hands, at breast level, an object, probably an offering. Ground on which they kneel, bright yellow, extending to R. slightly beyond limit of background, which is blue.

First figure to R. is dressed in complete pink robe outlined red, light blue sleeves outlined dark blue, dull buff girdle, black boots. Hair rippling across forehead is long, wavy, black, falling on to or behind L. shoulder, and is crowned with diadem adorned with pink lotuses (?) in front. Offering, perhaps a large fruit. Second figure, in green robe outlined black, red sleeves, buff girdle. Offering, fruit in brown-buff bowl. Boots of this and succeeding figures hidden by knees of figure to R. Third figure in dark red robe, light blue sleeves, buff girdle. Offering, a brown-buff object with crimson centre. Girdles of the three figures are continuous, but this may be due to the perishing of dividing contour lines. Fourth figure in light green robe. Contours of flesh, red. Eyes, black. L. edge of fr. extends obliquely, cutting off half of face and nearly all of fourth figure, and knees of third.

Upper register: to R. lower part of two figures seated cross-legged on yellow ground probably looking one quarter to their R., and with hands held out either clasped in adoration or holding offerings; but this is not clear as fr. is torn away above waists. First figure in rich green robe; red pyjamas, sleeves and girdle. One foot visible, merely outlined red on yellow ground. Second figure pale pink robe outlined red; light blue pyjamas and sleeves (?); buff girdle.

Background dark blue, on which to R. proper of figures two discs side by side, one orange yellow, the other dull white. Slight traces of gold on diadem of second figure of lower register, and on blue background of upper register. To R. of painting an incomplete line of Sogdian writing. Painting much defaced. *Rev.* ten incomplete lines of Sogdian written in dense black ink, with vermilion punctuation marks; see Dr. Lentz's App. *R.* Hard and rather brittle. 3 7/16"×1 13/16". Pl. LXXVII.

OBJECTS EXCAVATED IN RUINED MONASTIC STRUCTURES KAO. I.

**Kao. I. 02. Three frs. of silk,** fine weave; terra-cotta pink with traces of paint. Gr. fr. 2"×¾".

**Kao. I. i. 01. Fr. of embroidery;** floral design. Very discoloured and ragged. Perhaps toe of shoe. 4½"×2".

**Kao. I. ii. 01. Silk painting.** Small fr. with red, blue, and yellow drapery outlined black. Also small piece of plain crimson. 2½"×1½".

**Kao. I. ii. 02, 038. Fresco frs.,** showing buff band between black lines, with crimson ground on one side, green on other; ornamented with circles painted in red outlines. Colours of this and all subsequent pieces dimmed by sand incrustation. *02*, 3½"×3⅛". *038*, 4"×4".

**Kao. I. ii. 03, 05, 042, 046, 059, 065-6.** Fresco frs. showing floral decoration on red ground. Long green scrolling stems, outlined black on shadow side and yellow on light side, throw off formal flowers at intervals, and carry open lotuses supporting decorative female (?) heads.

*03*, curve of stem, L. end petal of lotus, end of hair at shoulder, white drapery at side of head and circular ear ornament. Face entirely missing. To L. a shaded green border, outside which buff.

*05*, at upper half, scroll of stem, two L. petals of lotus, hair, head drapery, barred with thin black lines, part of cheek and ear disc, part of yellow halo. Below part of blue rosette with buff centre. Petals outlined white shaded

black. Centre outlined red. To L. three curved bands—buff, green and buff, beyond which black.

*042*, to L. green stem. To R. side of face showing R. eye rather oblique looking R., part of nose and mouth, falling barred drapery, halo shaded grey.

*046*, curving stem, (yellowish) halo (?). and drapery (?) of head.

*059*, scrolled stem rising from lower edge where two short stems R. and L. carry yellow rosettes. Volute of centre stem carries dark yellow lotus. All above broken away. Part of white (?) band to R.

*065*, upward scrolling stem branches R. and L. carrying blue rosettes to L. and yellow (?) to R. Volute of main scroll carries shaded pink lotus with black midribs from which issues head *c.* half life-size; R. p. side of neck and cheek, ear; long tress of hair in front of ear; long hair at back to shoulder; yellow disc ornament in ear, barred drapery falling stifly behind hair; shaded yellow (?) nimbus. To L. long curved bands of buff and green, outlined white on R. side and black on L. Outside these pinkish-buff.

All frs. rather dull and faded, and very broken. *03*, 4½"×4". *05*, 6¼"×5½". *042*, 2¾"×2". *046*, 4"×3¾". *059*, 6"×5½". *065*, 9"×7½". *066*, 5"×3½".

**Kao. i. ii. 04, 013–15, 028, 033–4, 048, 063. Fresco frs.**, of elaborate border decoration consisting of a red band bordered with pearls, and ornamented with rosette and leaves. Outside red band on both sides a grey-blue band ⅞" wide, one broken away, the other with double outline of white and black on one edge and the pearls of red band on other. Adjoining grey, a broad festoon-like mass of large overlapping peony-like flowers drawn in thick red lines on a buff ground.

Bold black lines suggestive of drapery folds are painted over the peony mass, extending from end to end. Outside, a black ground.

Peony orn. on 04, 013, which also has part of grey band and pearls; 014, 015, 028, 048, 063 (faded). 033 shows red band with buff edge of rosette, with palmette arrangement of thin green leaves springing from behind. 034 is continuation of same, with buff rosette having purple inner row of petals strengthened with black, a bunch of four green leaves as in 033. Part of a second rosette or jewel adjoins, elliptical with yellow edges scalloped with black lines, and an emerald green centre bordered by white pearls. Gr. fr. (*048*) 10¼"×5½".

**Kao. i. ii. 06, 026, 031, 039, 044, 047, 049, 052, 064. Fresco frs.**, showing bold floral decoration of tulip-like flowers, and long fleshy leaves. Painted in reds and yellows, with green leaves, on a warm buff-grey (?) ground. Edges of leaves are treated like fur, with black lines.

06 shows near one edge slightly curving bands of red, buff and grey, divided by black lines. An end of green drapery appears on 031; 039 and 047 join. Bold work; faded. Gr. fr. (*06*) 8½"×5".

**Kao. i. ii. 07, 012. Fresco frs.**, showing part of dress (?). At top two overlapping scales of mail. Below these an ornamental band *c.* 1" wide with scroll ornament in red outline on yellow ground. To R., a stiff stole of crimson with yellow lights and black contour lines. Between edge of stole and under side of band, a quadrant in yellow with red scrolled border and rayed corner. From band and quadrant hangs crimson drapery. To R. of stole, grey. 6"×4".

**Kao. i. ii. 08, 010, 057–8. Four fresco frs.**, joining and showing heads and shoulders of man and woman, side by side, ¾ to R. Man, on L., has long face; high narrow cap close-fitting and pointed down over forehead, slopes upwards to stiff upright back, with lower part of back and ear-flaps turned up, the ear-flaps pointing forward. Straight well-formed nose and almost straight eyes. Scanty fringe of hair under peak of cap, eyebrows, drooping moustaches, beard, whiskers, and long hair falling in front of and behind ear; all painted in series of straight detached black lines.

Face pale pink; cap white with black outlines; black horizontal wrinkle across forehead, and crow's-feet at corner of eye. Dark red lips. Only fr. of robe preserved, coming close round neck. L. hand against beard holds a long curving stem against L. shoulder, bearing thin green leaves and a red globular flower at top. R. hand clenched against breast, perhaps also holding stem.

Woman's face on R. is young and rounded, also painted pink with black outlines, red lips, and red spot on forehead and R. temple. Nose and eyes straight like man's.

Hair black, painted solid; done in straight line across forehead, and turning at right angles down side of face, where it hangs in heavy mass decorated with yellow flowers, to bottom of ear. On top it is dressed in two high looped masses, curving apart and carrying between them an upright red egg-shaped orn., prob. drapery. Narrow white leaves (?) follow line of loops. Incomplete above. For style of hair-dressing generally, cf. ladies' figs. in *Ser.* iv. Pl. LXXIV, Ch. lv. 009–10.

For another example, incomplete, see Kao. i. ii. 051, and for a large example, incomplete, Kao. i. ii. 016. Woman's robe also red, close round neck. Background (halo ?) white near heads and black above. Curving green stem also over woman's L. shoulder. Gr. h. 8¾", gr. width (joined) 5½".

**Kao. i. ii. 09. Fresco fr.**, showing Uigur (?) char. in black on buff ground. Gr. M. 1¾".

**Kao. i. ii. 011. Fresco fr.**, showing part of small spiral decoration in red and blue, with blue jewel on red down-turned lotus, by one edge. Background white. Gr. M. 3½".

**Kao. i. ii. 016. Fresco fr.**, showing on white ground (halo ?), L. side of coiffure of female head with part of pink cheek. Red spot on temple. Hair is dressed in large bow-shaped puffs, and a loop pendent covering ear and terminating in a yellow flower. Above the two puffs is a large red disc-shaped piece of drapery, which appears again hanging

below hair at back of head. Ornamental discs in red with yellow dots and rings adorn the hair. Traces of black background on other edges of fr. For other examples of this coiffure see Kao. I. ii. 08, &c. 7" × 4½".

**Kao. I. ii. 017. Fresco fr.**; in lower R. corner, part of head of monk, with close-cropped black hair. All below R. eye and L. p. of bridge of nose missing. As background is seen white drapery with contours roughly painted in black. Over drapery is written in thicker brush strokes Uigur (?) inscr. in 2 columns (incomplete). 5½" × 3½".

**Kao. I. ii. 018. Fresco fr.**, showing band of red, between pearl borders, white on black, and outer borders of blue. On red is floral scroll, green, the hollows filled by large pink flowers with blue centres. Beyond blue border are fine black lines on white ground and sweeping red drapery contour lines. 9" × 2" to 3".

**Kao. I. ii. 019. Fresco fr.**, showing part of halo (?), bordered by red band within buff band, on red ground; and within halo, knot of orange-red drapery (?). 3" × 2½".

**Kao. I. ii. 020. Fresco fr.**, showing white drapery, indicated by heavy black lines, falling from covered blue band, with row of pearls along top. Above, again, remains of scarlet rosettes. Belongs to Kao. I. ii. 061–2 (*q. v.*). 6" × 3".

**Kao. I. ii. 021. Fresco fr.**, part of chin, neck, breast and L. shoulder of male fig. in white coat, lined black. Short beard, and two ends of a red narrow band falling below chin. Black streamers or hair along shoulder as in Kao. III. 019 and 020. Flesh, dark pink. Decayed at lower edge. Gr. fr. 5" × 4½".

**Kao. I. ii. 022. Fresco fr.**, showing white drapery, lined black with two black ribbon-like ends on one side. In bad condition. 5½" × 3½".

**Kao. I. ii. 023. Fresco fr.**, showing on fine blue ground green and yellow stems, lined black and partly furry at edges. A curved pink object at one side. Gr. M. 3½".

**Kao. I. ii. 024. Fresco fr.**, much worn, showing remains of scroll and floral ornament in blue, green, and red. Gr. M. 3¾".

**Kao. I. ii. 025. Fresco fr.**, showing on light blue ground a floating lotus with drooping petals, pink with white outline. 8" × 4" to 5".

**Kao. I. ii. 027. Fresco fr.**, from border, showing fr. of return edge in clay. Surface shows band of buff by edge, then red ground on which is low-spreading broad-ended leaf (?), shaded in bands of black (centre), blue, grey and white, with black edge. On R. and L. ends similar green leaves almost meeting it. 7½" × 2½" to 3".

**Kao. I. ii. 029. Fresco fr.**, showing end of red drapery (?) with V-shaped folds, on red ground. Much worn. 3½" × 3½".

**Kao. I. ii. 030. Fresco fr.**, showing on blue ground a bolster-shaped object which may be a cushion or knee of a fig. resting on an emerald green pedestal (?). Cushion white, covered with green lozenge latticework, with red spot in each lozenge prob. representing figured fabric. 4" × 3".

**Kao. I. ii. 032. Fresco fr.**, showing lower part of squatting figure (?) supported on a scrolling yellow stem. Tunic yellow, striped red. Yellow girdle loosely tied, outlined black. White pyjamas shaded grey, outlined black. Background crimson. 3¾" × 2½".

**Kao. I. ii. 035. Fresco fr.**; top of head of Bodhisattva to R., against blue (?) halo. Black hair bound with white tenia supporting jewel in front. Tip of R. ear pink lined red. Background crimson with discoloured bands to L. Very faded. 5" × 2½".

**Kao. I. ii. 036. Fresco fr.**, showing long curved tapering bands of pale pink, with bright pink midrib and grey outlines, on green and pink background crossed by broad, wavy black lines. Free drawing. 4½" × 3¾".

**Kao. I. ii. 037. Fresco fr.**, showing two rows of formal petal decoration, divided from each other and background by white bands, which are again subdivided along length by grey or black lines. Petals are arranged panel fashion, within black or grey outline frames; one row red, the other blue. Perhaps from fig. in elaborately decorated armour, as *Th. Buddhas*, Ch. liv. 003, Pl. XXVIII. Traces of green background beyond. 5" × 5".

**Kao. I. ii. 040. Fresco fr.**, showing blue band (colour almost gone), and red ground beyond, on which is part of circular rosette having blue petals edged with white and black. Gr. M. 4½".

**Kao. I. ii. 041. Fresco fr.**, much effaced, showing falling ends of green drapery with zigzag folds on buff (?) ground. 5½" × 2".

**Kao. I. ii. 043. Fresco fr.**, surface much broken, showing fr. of floral (?) decoration. Gr. M. 2½".

**Kao. I. ii. 045. Fresco fr.**, almost obliterated, showing frill of blue drapery making wave-like folds at bottom, and yellow band above, decorated with lozenge pattern in red outline and curves in blue. 5½" × 5".

**Kao. I. ii. 050. Fresco fr.**, surface worn, showing row of formal lotus petals, or tabs shaded blue with white borders, and double buff band below and above. At extreme lower edge, red. Loop of beads hangs across petals; red trefoil in corner by broken edge. Prob. part of costume. 6" × 4".

**Kao. I. ii. 051. Fresco fr.**, showing forehead and part of hair of woman, ¾ to L. Same type of features and hairdressing, as in woman of Kao. I. ii. 08, etc. (*q. v.*), but less complete. L. eye preserved, somewhat oblique; of coiffure, base only of loops with grey halo, and of red bud (?), preserved. *c.* 3" × 2".

**Kao. I. ii. 053. Fresco fr.**, too fragmentary to be intelligible. 3½" × 2¼".

**Kao. I. ii. 054. Fresco fr.**, showing on grey ground curved transverse white bands shaded with grey and edged with

black, and three pairs of jewels in red and green. Similar to those on Kao. I. ii. 011. To L. hangs a buff band, to which ends of transverse bands seem to be attached. Prob. breast of fig. Surface damaged. 6" × 3½".

**Kao. I. ii. 055. Fresco fr.,** showing curve line of bead orn., white outlined black; with blue ground inside curve, and red ground outside, on which is red circular flower pink-edged and green leaves mostly destroyed. 3½" × 2".

**Kao. I. ii. 056. Fresco fr.,** showing part of row of large curved petals, alternately shaded green, red and blue. Prob. part of large Padmāsana; cf. *Ser.* iv. Pl. LXIV, Ch. xxviii. 006. 5½" × 5¼".

**Kao. I. ii. 060. Fresco fr.,** much effaced, showing on light blue ground tassel and sheaf of scrolls in light buff with dark red outlines. Prob. part of head-dress. 6" × 5½".

**Kao. I. ii. 061. Fresco fr.;** surface mostly broken off; showing on remainder part of curved pearl border, with crimson within and band of grey without. Edge of grey, white and, outside that, a broad black line following general curve. From this line, at right angles to it, are heavy black lines over white. Prob. drapery. Cf. Kao. I. ii. 020. Surface preserved. 2½" × 2".

**Kao. I. ii. 062. Fresco fr.,** showing bands alternately grey and white, outlined with broad black lines. 6½" × 4".

**Kao. I. ii. 070. Piece of string,** strung with small leaden disc and knotted together at ends. Length (knotted) 5", diam. of disc ½". Pl. LXXI.

**Kao. I. ii. 073. Fr. of glazed porcelainous stoneware;** thick bluish-white body, fine smooth glaze each side of soft reseda green. Gr. M. 2", thickness ⅜" to 1/16".

**Kao. I. ii. 074. Fr. of wooden comb;** straight-backed, with very short teeth. Length (incomplete) 2", depth ⅞", length of teeth *c.* 3/16". Pl. LXXI.

**Kao. I. ii. 075. a, b. Two frs. tapestry,** coarse, worked in peacock tail pattern in blue, red, yellow and brown. Colours rather faded; fabric very ragged. Gr. fr. 8½" × 6". Pl. LXXXVII.

**Kao. I. ii. 076. a–b. Two frs. of moulded brick;** grey, sand-encrusted. Larger (*a*) shows part of circumferences of two circles joined by straight band; band and borders of circles formed of row of large bead orn. in relief between raised lines. Fr. of raised orn. within circles, unintelligible. Smaller (*b*) shows part of circular eight-petalled rosette, with raised centres to petals. *a*, 8½" × 5½" × 1⅞". *b*, 2⅞" × 2⅞" × ⅞". Pl. LXIX.

INSCRIBED SLAB EXCAVATED IN SHRINE KAO. II.

**Kao. II. 01. Fr. of burnt clay slab with Chin. inscription;** soft pinkish-buff. Remains of 6 ll. Chin. chars. incised on face, of which three are in fair condition. Gr. h. 9⅜", gr. width 5⅜".

OBJECTS EXCAVATED IN RUINED SEPULCHRAL STRUCTURE, KAO. III.

**Kao. III. 01. Brass mirror,** circular face, and handle attached, in one casting. *Rev.* Edge chamfered, sunk border (plain). Field, design undecipherable, prob. landscape. Handle, channelled by sunk border of circular part being continued down to it. *Obv.* plain. Rough workmanship. Circular face 4⅜". Handle 3⅜" × 1⅜". Thickness ⅛". Well preserved. Pl. LXXI.

**Kao. III. 01. a. Circular brass cover for face of Kao. III. 01.** Raised rim 5/16" deep. Bottom convex, with 4 studs evenly disposed about ½" within edge. Two pairs of parallel concentric circles incised. A line incised round outside of rim. Lathe-turned marks on under side. Diam. 4⅜". Well preserved.

**Kao. III. 02. Circular brass mirror** with handle, cast in one piece. *Obv.* plain. *Rev.* of circular face, raised design representing a minstrel playing an instrument of percussion (or a species of harmonica), and prob. dancing. An audience of three boys, two dancing, one on all fours in foreground, with string of cash in front of him.

To R. p. an apple or orange tree laden with fruit; flowers in foreground, clouds in sky. The whole design and execution spirited. Stem of tree, naturalistic. Border of subject a plain band ¼" wide. Handle has raised edges. Well preserved. Diam. of face 3⅜". Length of handle 3 7/16"; width ⅝"; thickness 3/16". Pl. LXXI.

**Kao. III. 03. Pair of embroidered shoes.** Stout leather soles. Sides, verdigris colour tapestry, sewn to stiffening by minute stitches which give the effect of fine quilting. On front two parallel bands of plum colour tapestry, ½" wide with space of 3/16" between, are applied from edge to sole. Between, a different kind of tapestry with pattern in buff lines.

A single line of round fine green braid runs down centre. Each edge of plum bands is worked with yellow braiding, and on each band, in fine cable braid, are linked fleurs-de-lis. Back of heel treated the same, but a single line in place of fleurs-de-lis.

On each side of central bands in front is an elaborate flower worked in Chinese feather-stitch in blues, green, pinks and yellows, and outlined with a couched thread; similar work at heel. Edge bound with buff silk of extremely close and firm texture, beautifully shaped to the horn at instep by gathering, and with three rows of stitching. Lining crimson silk.

A most exquisite example of workmanship. The woven materials are extraordinarily close and strong, and are probably made expressly for ladies' shoes. 8½" × 2⅜". Pl. LXXXVIII.

**Kao. III. 04. Three-footed bronze caldron.** Flattened globular body; plain rim 3/16" wide, sloping out at angle

of about 140°. Traces of two upright loop-handles (prob. rectang. as in following exx.) at opposite points on circumference of same; two stumps only remain.

Metal thickens into boss at centre underneath, and on this caldron actually rested. Feet are merely short curved supports, in form of claw issuing from sheath, springing from side just below line of gr. diam. and not reaching to ground. Good condition. H. 5¼", diam. of mouth 8¼", gr. diam. *c.* 8¾". Pl. LXX.

**Kao. III. 05. Two-handled bronze caldron,** without plain feet. Plain semi-spherical body, with boss at centre underneath, and wall thickening slightly inwards at top to form flat thickened rim. Handles, of rectang. loop shape (most of outer sides broken off), project horizontally from sides, ¾" below rim. Two bands of fine incised lines round wall inside, near top. Outside considerably corroded, and hole in side; otherwise good condition. H. 6½", diam. of mouth 12¾".

**Kao. III. 06. Two-handled bronze caldron;** same type as preceding, but of smaller diam., deeper, and without hole. H. 6¾", diam. of mouth 10½". Pl. LXX.

**Kao. III. 07. Two-handled bronze caldron;** same type as Kao. III. 05 and 06; but smaller, shallower, and with wide handles upright on edge of rim instead of projecting horizontally. Several holes in side. H. 4½", diam. 9¾". Pl. LXX.

**Kao. III. 08. Iron cooking-pot;** small, round, flat, with (horizontal) handle broken off at one side. Above stump of handle is scalloped ornamental projection, standing upright on rim. Latter plain, slightly bevelled towards inside; small flange 5/16" down inside, as if to support lid. Rusted, but solid. H. 2½", diam. of base 4¼", of rim 4¾". Pl. LXX.

**Kao. III. 09. Bronze cooking-pot;** round and flat like the preceding, with horizontal socket projecting at one side for iron handle, tang only of which remains. Socket has been added after casting of pot, and is made in one with an additional piece of bronze plate, which is fitted over rim of pot and holds side securely inside and out. Bottom of pot inside orn. with two raised circles, one near centre and one near circumference. Outside moulded in very slightly receding planes towards bottom. Good condition. H. 2¼", diam. of rim 6¾", diam. of bottom 6". Pl. LXX.

**Kao. III. 010. Wrought iron or steel spear-head;** long narrow blade, with edges slightly concave to about ½" from point. Shouldered towards socket, which is long, hollow, and round in section, expanding towards end, where edge is rolled back. Rivet-hole through side, ½" from edge. Good condition. Length of whole 9¼", of blade 4¼"; gr. diam. of socket (inside) 1". Pl. LXX.

**Kao. III. 011. Bronze disc,** with orn. in *champlevé* on each side, and hole pierced through centre. Plain band on each side round edge of hole, and rim. *Obv.* on R., flaming-haired three-headed six-armed demon (or Vajrapāni ?) seated on rocks (?), ¾ to L. Upper hands hold aloft objects unrecognizable (but that in R. is flaming); middle hands joined at breast; lower on knees hold horizontally long club or thunder-bolt.

Fig. wears long robe, but both legs are exposed to knee, R. foot resting on ground, L. bent inwards from knee. Opposite him, two kneeling demons with hands in adoration (partially destroyed), and cloud scrolls behind. Good free work.

*Rev.* shows three concentric rings, subdivided crosswise into panels. In panels of outer ring are 12 Chinese cyclical signs; in panels of inner 12 Chin. chars.; in innermost band of flower orn.

Somewhat worn and bent. Broken in several pieces now joined. Diam. 2¾", of hole 7/16", thickness at edge *c.* 3/16". Pl. LXXI.

**Kao. III. 012–13. Two iron loops,** prob. from harness. Quasi-elliptical in shape, with wide bowed side, at extremities of which the ends of the rod are curved sharply back towards each other and turned out again in small volutes as soon as they have touched. Rod oblong in section, narrowing to square at tips. Rusted, but fair condition. Width of loop 2⅝", gr. h. 1⅝", gr. width of rod 7/16". Pl. LXX.

**Kao. III. 014–15. Two flat iron rings,** plain, rusty. Outside diam. 3 3/16", inside 2¼". Pl. LXX.

**Kao. III. 016. Fr. of iron or steel implement,** in form of hollow cone, broken off at narrow end, which is open. H. 1 3/16", diam. at large end ⅞".

**Kao. III. 017, 082–6. Cast bronze bell,** like small cow-bell. Broken in six pieces, but almost complete. Rectangular transverse suspension loop at top, and hole for attachment of clapper (lost). Slightly thickened rim round mouth. Plain. H. 2¾", mouth 2¼" × 1½", average thickness 3/32".

**Kao. III. 018. Bronze bolt,** round in section, with large solid quasi-conical head, roughly shaped. Length of whole 1½", of head 9/16", diam. of pin ¼".

**Kao. III. 019–20. Two fresco frs.,** showing donors, kneeling, from bottom of large composition of which frs. only remain (see 021–58). Ground shows series of alternate pink and red rectang. slabs, seen in perspective, with cream band beyond and white background above. From the cream band rises on each fr. a vertical band of grey, 2½" wide, outlined and orn. with broken scroll-work in black; significance not fully intelligible but prob. to divide subject into panels, as in silk painting Ast. iii. 4. 010, Pl. CV, CVI.

*019.* Irregularly placed on the chequered flooring, or on the background above, are two roughly drawn pedestals supporting jewels or sacred emblems (?), incomplete, and a man kneeling ¾ to R., immediately behind grey band, with hands on breast. He wears a long dull red coat covering both feet and hands, and (apparently) a white

hood covering neck and framing face (which is painted pink); but upper half of head is lost. Long black lappets or locks of hair fall by sides of face and down back. Lower part of face rounded in contour, with short whiskers, beard and moustache. Remains of one l. Uigur inscr. in front of him.

*020* shows, kneeling ¾ to R. on background above chequered flooring, four persons, the one farthest to R. complete, and immediately behind grey band as in 019; the other three more or less effaced, behind him. Before each remains of one l. Uigur inscr.

Foremost man wears long whitish-grey coat with red band, second figure light green coat, third dull red, fourth dark grey. Head of first only is preserved, and shows rounded face with oblique eyes and eyebrows, hair shaved except for fringe on forehead; small moustache and beard, and long separate black locks hanging by each side of face and over R. shoulder. On top of head is small round black cap, with white border and small spike on top.

Between first and second figures and second and third are square pedestals or altars in perspective. Surface abraded along whole of upper edge. *019*. 1′ 8″ × 9″; *020*, 1′ 10″ × 12″.

**Kao. III. 021–30, 032–58. Misc. small fresco frs.** from composition above, 019 and 020, not joining enough to show subject of painting, though one or two incomplete groups with figs. remain. The following are the most important groups:

*021*, *036*, *041*, *051*, *057*; showing three-legged caldron amongst floating flames, red and green. Caldron filled with grey objects (indistinguishable). Two attendant demons (?) are R. and L. of caldron, the one to L. showing only L. leg and foot to knee, uplifted in violent pose on L. edge of fr., touching flames. On R. hips, R. leg and part of L. leg of second demon with upper part of body inclined away from flames. Knees and shins of both figures seem to be protected by guards. R. figs. wears red loin-cloth bordered green, and a red flowing stole of which looped folds appear R. and L. of waist. To R. is part of vertical grey band as in 019, 020, &c. Perhaps scene from Chinese hell. H. joined 11″, gr. width 12¼″.

*024* and *054* show part only of body of dragon (?), grey-spotted on white, with red horns or wings (?), and red under-side to curling tail. (Together) 6¾″ × 9″. Of the less important frs.—

*029*, *034*, *035*, *042*, *044*, *046*, *047*, *048*, *049*, *058* show vertical grey band decorated with black, as in 019, 020, with white ground each side. On L. outer edge of 058 is fr. of pink scarf or halo; while 2¼″ to R. of grey band (034 and 035) is vertical green band orn. with streamer o tabs (?) above (as in 020), and part of slanting cross-band of green scroll-work. Gr. h. (joined) 1′ 8″, gr. width 8″.

*022* and *053* show yellow rectang. lattice-work on red, prob. part of tiled flooring. Much effaced. Gr. fr. (*053*) 9″ × 5″.

*023* shows part of halo of concentric rings of pale pink, yellow, red and green, with traces of green foliage beyond. 4″ × 2½″.

*025* shows part of green rounded object on red support; perhaps part of pedestal for emblem as on 019, 020. 4″ × 3″.

*026* and *027* show decoration of overlapping petals in grey and vermilion, with grey band on white above. 6″ × 3″.

*028*, *032*, *039* show part of green scrolled band as in 029, &c., with white ground on one side, and on the other a black band on which is pink scroll-work with composite flower-bud in pink and grey filling hollows. Gr. length (joined) 9″, gr. width 5″.

*030* shows fr. of square pedestal; red, orange, and green; as on 020. 6″ × 3½″.

*033* and *038* show green band orn. with yellow scroll, and grey ground at side, on which is white quatrefoil rosette with red centre, and yellow leaf. 5½″ × 3″.

*037* shows yellow scroll-work on green, almost completely effaced. 4¾″ × 2″.

*040*, *045*, *050* show part of widening white band with white and green marking, and red at side. 4″ × 4″.

*043* shows fr. of red slab with cream border as on flooring of 019, 020. 4½″ × 2″.

*052* shows on red ground yellow disc, containing species of green quatrefoil, outlines red; black and white band at side. 3″ × 2¼″.

*055* shows part of pedestal as on 019, with red and yellow scroll band, and part of red and white rosette orn. on grey ground, at side. 3¼″ × 3¼″.

*056* shows grey ground with red and yellow ornamental band at side. Surface partly lost, and remaining part much effaced. 2″ × 3¼″.

**Kao. III. 031. Fresco fr.** in several pieces. A white nude woman, head missing, stands with hands behind waist, tied to a brown post, the ligature visible round ankles. Her black hair streams lank to shoulders. Breasts small but with elongated drooping nipples, each of which seems to be tied round with ligature. A black snake coils round R. p. leg, crossing over front above knee, then behind thighs, and appearing again beside L. hip (broken away).

On either side stands a demon, each with one foot raised and pressed against elbow of woman to give purchase for the use of a cross-cut saw with red handles, with which they appear to be sawing downward through woman's head. R. p. leg only of R. demon remains and both legs and up to waist of L. demon. They wear green bordered red Dhôtis and have anklets. Flesh of legs pink, shaded darker towards knees. Gobbets of three- and two-tongued red and green flame are scattered about white background.

The group stands above a yellow band, nearly 1″ wide, below which is paving of alternate light and dark red slabs with receding edges running from R. to L. as though to suggest perspective. Drawing careless but expressive, and the suggestion of force applied by the upraised feet against woman's elbows well rendered.

Outlines and contours black. Drapery folds shaded. It seems to form part of lower register (kind of predella)

of a larger painting. Broken on all sides and L. side badly damaged by moisture. 1' 3" × 1' ¾" (height).

**Kao. III. 059. Fr. of terra-cotta grotesque dragon head** in relief. Lower jaw, point of snout and back of head missing; rugged teeth in front part of upper jaw. Two blunt leaf-shaped ears placed side by side, and two snail-shell scrolls in high relief probably representing eyes. Line of forehead rises abruptly from prominent snout. Edge of gum on lower plane than lip. Deep groove at angle of jaws and three deep grooves along ear. Rough work.

Back of fr. unmodelled. Grey; buff on surface due to sand incrustation. Length 7", height 5¼", thickness 1½". Pl. LXIX.

**Kao. III. 060. Fr. of grass broom** similar to *Anc. Khotan*, ii. Pl. LXXIII, N.X. 07. Length 10¾", width at base *c.* 2½".

**Kao. III. 061. Wooden weighting board,** from small banner. Long sides parallel, short sides converging upwards. Groove in upper edge. Painted dull yellow with scroll design rapidly painted in black line within narrow border, and with subsidiary lines in red. Cinctures across diverging curves. For shape cf. *Ser.* iv. Pl. LXXVII, Ch. 003. Length 5⅝"; width 1 3/16"; thickness 3/16".

**Kao. III. 062. Fr. of wooden lath,** cut to blunt point at one end and broken away at other. Roughly painted with transverse stripes; grey-blue at point, then red, buff (?) and grey-blue. Length 2¼"; width ⅝"; thickness 1/16".

**Kao. III. 063. Pair of shoes.** Golosh composed of two halves joined at back of heel and at toe. Shape of halves is such that when joined in a centre line on top, toe is pointed and stands clear above sole. Seam turns over point dropping downwards and slightly inwards to meet front end of sole.

Halves of golosh are composed of five superimposed layers of woven material. That which comes to inside of shoe is a soft loosely woven woollen canvas; outer layer, a fine crimson cord or repp, which is stitched to a woollen canvas backing by regularly placed stitches at intervals of about ⅛", except for a width of about 5/16" next sole, giving somewhat the effect of fine quilting. Behind canvas backing is a thin loosely woven crimson woollen fabric, and between that and lining of shoe a layer of thick soft hemp (?) canvas, stitched all over with crimson thread.

Edge of mouth of shoe rises slightly towards heel; as it approaches toe it curves inward from each side and meets in front in a sharp point directed back towards instep. It is bound with finely corded buff silk about ⅜" broad, except in front where it widens to ⅝", and again diminishes as it nears point. It is secured by three rows of stitching on outside.

On top of toe and concealing seam is an appliqué ornamental band extending from point at instep to upraised toe point, round which it wraps. The band is 1¼" wide and divided longitudinally into three equal parts; centre is decorated with transverse silver threads couched with yellow 'horse-tail'; a simple but now unintelligible pattern in dark brown or purple is worked over the silver. Along centre is a line of green braid stitching.

On each side of the silver is a band of purple silk gauze with a yellow silk cable cord on its inner edge and a piping of even and closely woven fine buff canvas on the outer, bound at intervals with yellow silk. On the purple, 3/16" from yellow cord and parallel to it, is a thin line of white silk cable cord, with a second laid beside it but throwing out a trefoil scroll at intervals of ⅜". The silver thread extends under the purple gauze and is couched to a dark grey or black fabric which is backed with fine crimson plain cloth. Heel seam is covered with same appliqué ornament.

Below point of toe the seam is curiously roughly sewn, forming a bunched mass of many thicknesses; it continues for about 1½" into the sole, which seems to be cut for that distance for the purpose of being sewn up again.

Sole is only 1⅝" broad; has straight parallel sides and is rounded at ends. It is quilted in regular lines forming transverse ribs about 3/16" wide. Its outer covering is strong, closely woven buff hemp cloth.

Both shoes are well preserved, but have holes here and there eaten by insects or rodents. A small fr. of oxidized iron adheres to edge of one shoe, and several frs. to sole and side of other. Length of sole 8¼". Both shoes are flattened out and in that condition measure across middle 4⅝" (cf. Kao. III. 03). Pl. LXXXVIII.

**Kao. III. 064. Turned wooden finial,** with round tenon ⅜" in length and in diam. at foot. Mushroom head on short neck, and flattened spherical body with sharp-edged ring moulding above and below; at bottom, plain cylindrical portion cut down sq. to tenon. Cracked. H. with tenon 3⅝", gr. diam. 2¼".

**Kao. III. 065–81. Misc. frs. of cast bronze,** the majority convex and apparently from sides of caldrons; some showing rib on outer side. 073, in three pieces, joining, shows thickened everted rim of caldron, and shoulder with mark of small loop-handle (broken off) and line of junction of parts of mould. Gr. M. (*073*, joined) arc of rim 8¼", h. 3".

**Kao. III. 087–97. Misc. frs. of cast bronze;** small, mostly flat. Plain. Gr. M. 2 5/16".

**Kao. III. 098. Fr. of rim of iron vessel.** Very slightly everted, and almost flat. Faint horizontal grooves below lip. 2⅝" × 1⅜".

**Kao. III. 099. Thin wrought iron (?) saucer;** flat-bottomed, with low curving side and plain edge. Three small holes equidistant from each other by edge. Rusted. Diam. of rim 5¼", h. ⅝". Pl. LXX.

**Kao. III. 0100–3. Four thin stamped iron (?) saucers,** flat-bottomed, like preceding. *0100* has fluted sides, scalloped at edge; *0101* has sides in eight shallower scallops and rim turned out flat, forming octofoil; *0102* and *0103* lightly grooved and scalloped in six foils only. Rusted. Diam. 4⅝", h. ⅝". Pl. LXX.

**Kao. III. 0104. Thin wrought bronze bowl or cooking-pot;** shallow, flat-bottomed, but convex sides curving in

again towards top. Edge not thickened, but has raised bead mould running round outside, ¼" below top.

Fr. of bronze sheet clamped and riveted on, on one side, for attachment of handle, but handle itself torn off. Bent, and edge broken, but fair condition. No orn. Diam. of bottom 4¼", gr. diam. 6⅝", h. 2⅞". Pl. LXX.

**Kao. III. 0105. Iron casque;** of type worn in Han times and by Rajputs in India. Edge drilled with six holes more or less equidistant from each other for attachment of chain-mail curtain. At apex hole c. 1½" in diam. covered by a circular domical piece of iron, with scalloped edge or crest which formed base of spike and is attached by four rivets. Hole (unintentional) broken through this. Rusted. Diam. of edge 7½", h. 3½". Pl. LXX.

**Kao. III. 0106. Bronze bowl;** lathe finished; broken in three. Shallow, with slightly rounded bottom and curving sides, turning in slightly to plain rim. Hole in bottom mended in antiquity with rough patch of bronze on outside, and another within.

Inside and out decorated with incised orn. Bottom, outside, with four-pointed star, over which is imposed 'St. Andrew's Cross'; both star and cross formed of plain bands outlined by pairs of lightly incised lines, and the whole contained within a circular ring at spring of sides. Interior of star, spaces between arms and cross and points of star, covered with punched circle and dot orn., which also decorates circumference of circle and arms of cross.

Sides lightly engraved in lotus-petal orn., with two annular lines below rim; spandrels between tips of lotus-petals, and plain bands between the annular rings again filled with circle and dot orn. Bottom (inside) orn. with two groups (outer and inner) of three bands of circle and dot orn. between incised lines; the innermost of the six turning inwards to form pair of spirals within circle. Remainder of circle filled with three pairs of curved bands, following upper curve of spirals to circumference, and (above) triple-pointed leaf (?); interspaces filled with small circle and dot orn.

All orn. very lightly marked. Fair condition. H. of bowl 2⅛", diam. of rim 5⅝", thickness of metal $\frac{1}{16}$" to $\frac{1}{32}$". Pl. LXX.

**Kao. III. 0107. Thin bronze saucer** (lamp ?), with wide flat ear-handle projecting from one edge. Handle and bowl made in one piece, exactly like a modern jeweller's pan. No orn. Flat bottom. Cracked and dented. Diam. of bowl 2⅞", h. ⅞". Pl. LXX.

**Kao. III. 0108–9. Two iron (?) discs.** *0108*, plain (doubled over). *0109*, with flat sq. lug projecting from edge at one side, and two rivet-holes near it. Rivet-hole broken) also by edge opposite. Doubled over irregularly. Diam. (*0108*) 5¼", (*0109*) 3".

**Kao. III. 0110. Fr. of sheet bronze,** from armour (?). Roughly oblong; three sides straight and edge curled over; fourth side curved, also turned over and 'wired'. At one end of fr. wire projects and is turned back to form loop. At other, the end of sheet bronze is turned over it; but hole is pierced through bronze below it. Smaller hole is also pierced below bar at two other points. Possibly 'patch' from repair of bronze vessel. 4" × (gr. width) 2¼".

**Kao. III. 0111. Curved bronze handle,** for caldron or pan. One end lost; other bent back forming hook-shaped loop. Main part of handle oblong in section, with wide faces on outer sides, and narrow faces above and below; oblong lessening to square at loop. Signs of wear towards broken end. Fine green patina. Arc of fr. 6½", gr. girth ⅜" × $\frac{3}{16}$". Pl. LXX.

**Kao. III. 0112. Fr. of iron (?) bar,** sq. in section; cut off at one end, broken at other. 1⅞" × ⅜".

**Kao. III. 0113. Iron rivet-plate;** flat strip with ends rounded, and hole through each. 1¼" × ⅜".

**Kao. III. 0114. Fr. of white metal foil;** irregular shape, hard, not corroded. Cf. Kao. III. 0133. Gr. M. 1".

**Kao. III. 0115. Fr. of bronze foil,** thin; has been scalloped (?) along one curved edge. Gr. M. 1$\frac{1}{16}$".

**Kao. III. 0116. Iron hook** with lozenge-shaped plate at top, moulded in one. Hole pierced through middle of plate. End of hook broken off. Length of whole 1$\frac{9}{16}$", plate 1" × $\frac{13}{16}$". Pl. LXXI.

**Kao. III. 0117. Fr. of iron sheet,** rolled into tube. Apparently riveted over some tube-shaped object, perhaps end of knife-sheath; rivet-holes at edges, corresponding to each other as fr. is rolled, but obj. now somewhat out of shape. Rusted. Length 3", gr. width as rolled 1⅜".

**Kao. III. 0118. Bronze buckle;** broken in two and tongue lost. Circular hoop, with oblong loop at back for attachment, made in one piece. Not corroded. Length 1", diam. of hoop $\frac{13}{16}$", width of loop ⅝".

**Kao. III. 0119. Fr. of iron rod,** bent into U-shape. Broken each end, round in section. Rusted. Length ⅞", width at top $\frac{13}{16}$".

**Kao. III. 0120–1. Two iron rings,** open at ends, which are finished with rotund knobs. Rusted. Approx. diam. of *0120* ⅞", of *0121* ¾".

**Kao. III. 0122. Iron ring,** open at ends, which are thinned for lapping. Round section thicker at centre than at ends. Rusted. Outside diam. of ring about 1⅜". Section, gr. thickness, $\frac{3}{32}$".

**Kao. III. 0123. Iron staple,** linchpin pattern, made of flat, tapered wire; points corroded. Linked to it a roughly round rod squared and tapered at link end, where it is doubled over into loop which engages with eye of staple and swings loose.

Broken at thick end; rusted but strong. Length of staple 1¾"; gr. breadth of wire $\frac{3}{16}$", thickness about $\frac{1}{16}$". Length of rod 2⅝"; gr. thickness ¼".

**Kao. III. 0124. Iron hinge,** made of two small oblong rivet-plates with hooked ends linked to small ring, the hooked ends being made large to admit of play. Other ends of plates are rounded; and through them and also

near inner ends are pierced holes, one retaining rivet. Rusted. Length (spread out flat) $2\frac{3}{4}$", diam. of ring $\frac{3}{4}$", width of plates $\frac{5}{16}$". Pl. LXXI.

**Kao. III. 0125–6. Two frs. of iron rod,** bent into hairpin shape. Cf. Kao. III. 0140. Ends broken. Length $2\frac{5}{8}$" and $2\frac{3}{4}$", thickness of rod under $\frac{1}{8}$".

**Kao. III. 0127. Fr. of bronze mirror (?),** showing part of flat thickened rim, and thinner field with three incised annular lines immediately within rim. Crumpled. Gr. M. $1\frac{3}{16}$".

**Kao. III. 0128–9. Two frs. of cast bronze;** *0128* small, flat; *0129* large, convex, prob. from side of caldron as Kao. III. 065–81, &c. Gr. M. $3\frac{1}{4}$".

**Kao. III. 0130. Iron nail,** rectang. in section, tapering to point. Bent, and broken at head. Length $2\frac{5}{16}$", gr. width $\frac{3}{16}$".

**Kao. III. 0131. Bronze boss;** of thin foil, hollow dome-shape with wide flat rim in which two holes pierced. Edge broken. Diam. $\frac{5}{8}$", h. $\frac{1}{4}$".

**Kao. III. 0132. Iron boss,** sq. Front orn. with five sunk dots arranged cross-fashion on face, and three grooves down each of the back-bent sides, which makes the boss into a quatrefoil of late Gothic type, the four outer punch-marks being the 'eyes' at junctions of foils. Rivet-hole in two corners diagonally opposite. Good condition. $\frac{3}{4}$" sq., depth *c.* $\frac{1}{8}$".

**Kao. III. 0133. Fr. of white metal foil,** as Kao. III. 0114. Irregular shape. Gr. M. $\frac{5}{8}$".

**Kao. III. 0134. Fr. of brass band link,** flat, with narrow loop at one end. Other end broken, but apparently was forked. Crumpled on itself; not corroded. Roughly made. Length (when straight) *c.* $1\frac{1}{2}$", width $\frac{3}{16}$".

**Kao. III. 0135. Pebble,** opaque, bluish white, cut cone-shape and polished, with slightly convex base, on which are two slight depressions near opposite edges. H. $\frac{5}{8}$", diam. of base $\frac{7}{8}$". Pl. LXXI.

**Kao. III. 0136. Silver amulet-case,** in form of small circular box, with ring at top for suspension. Box made in two halves, back and front, the front fitting as lid. Each face orn. alike, in relief, with central hexagonal rosette surrounded by four smaller six-petalled flowers and four sprays of long narrow leaves (placed alternately), the whole within a ring of minute bead pattern. Good work and in good condition. Edges of box plain, but with small ring soldered to each half.

Through these rings are short chains of double silver wire attaching case to one larger silver ring, and this again, by iron ring, is attached to longer chain of iron wire. Latter is made of series of long figure-of-eight-shaped links, made of double coil of the wire finished at 'waist' by close binding (9 or 10 turns) with end of same wire. Somewhat rusted. Diam. of case $1\frac{1}{8}$", thickness $\frac{5}{16}$", length of chains $5\frac{1}{2}$". Pl. LXXI.

**Kao. III. 0137. Silver figurine of nude male,** standing, with ring on top of head for suspension. Hands joined on breast; legs straight, joining at feet into one tapering rod. Surface worn. Length $1\frac{5}{8}$", gr. width just over $\frac{1}{4}$". Pl. LXXI.

**Kao. III. 0138–45. Eight frs. of iron rod;** *0140* bent into hairpin shape as Kao. III. 0125–6, and others (broken) prob. orig. the same, except *0138*, *0143*, which are longer and of heavier rod. Length (*0140*) $2\frac{1}{4}$"; average thickness of wire $\frac{1}{32}$" to $\frac{1}{8}$".

**Kao. III. 0163. Fr. of iron band;** flat strip, bent; one end broken, other expands into circular disc and then ends in lozenge shape. Through disc is rivet. Length (straight) $1\frac{3}{4}$", average width $\frac{1}{4}$".

**Kao. III. 0164. Pair of iron (?) tweezers.** Flat flexible strip of metal, doubled and pinched together $\frac{5}{16}$" from band so as to form loop. The two blades then lie close upon each for a short distance, gradually separating afterwards and turning in to each other again at end where they are finely finished in chisel edge. Small elliptical iron ring, for locking grip of blades when closed, hangs loose upon one.

Other blade broken off at two-thirds length. Blades widest near free ends, narrowing towards bend. Rusted in places. Length $2\frac{11}{16}$", width $\frac{1}{8}$" to $\frac{1}{4}$". Pl. LXXI.

**Kao. III. 0165. Iron ring,** small, round in section, with fr. of pin (?), made of iron rod doubled, looped round it. Part of hinge (?); cf. Kao. III. 0124, Pl. LXXI. Rusted. Diam. of ring $\frac{5}{8}$".

**Kao. III. 0166. Fr. of iron (?) band,** bent round so as to form small triangular ring. Ends prob. joined in antiquity, but now slightly apart. One end wider than other, and finished off in two small scallops with teeth at outer corners. Hole pierced near one. Rusted. Ring (as bent) base $\frac{5}{8}$", H. $\frac{7}{16}$", width of band $\frac{5}{16}$" to all but $\frac{1}{8}$".

**Kao. III. 0167 and 0168. Two iron padlocks.** The principle is that of the spring snap frequently used to join the ends of a lady's necklace or bracelet. Lock consists of two parts—tube and snap. Tube is nearly closed at one end, where is small rectangular aperture for key, and fully open at other, but with ring fixed inside, near mouth to check return of snap when lock is closed.

Parallel to tube and twice its length is a round rod with short flattened limb at right angles to its length. Rod is attached to keyhole end of tube by the short limb which holds rod at a distance of *c.* $\frac{3}{8}$" from tube, half the length of rod extending beyond open end of tube.

Snap consists of a thin plate with hole drilled through at one end to engage with rod, and, attached to centre near other end and perpendicular to its surface, a wedge-shaped flat bar. To each broad surface of bar, at its free end, is joined a flat spring $\frac{3}{8}$" shorter than bar, which diverges as it leaves point of junction. The two springs form barbs to the spring bar. To apply lock, rod is threaded through staples or rings attached to object to be secured. Snap plate is then threaded over rod by hole and snap entered into tube and pushed home until springs, closed to the sides of spring bar by narrow opening of ring fixed in mouth of

tube, run clear and are released, resuming normal spread position within tube; the end of tube is closed by margin of plate supporting spring bar.

When closed the form of lock is that of a narrow rectangle, with one long side produced to double its proper length; this produced side represents the rod, the opposite side the tube, and the short side joining centre of produced side to end of opposite side, the snap plate.

To open, a two-pronged or flattened tubular key must be inserted into key-hole; the prongs press on springs and close them to sides of spring bar, when snap can be withdrawn through lower aperture.

*0167* has square tube, and two iron rings remain on rod. Check ring within mouth of tube is missing, so that snap can be withdrawn.

*0168* has cylindrical tube, and two staples remain on rod. End of rod simply moulded for ornament. Rod in both cases slightly bent. In both, snap plate is waisted and crudely ornamented.

Workmanship rough. Slightly rusted; cf. *Shōsōin Catal.* Pl. 31, 153. The same type of lock has been found in England, and is still in use in Japan.

Length of *0167*, $5\frac{1}{4}$"; width at widest, $1\frac{3}{4}$"; diam. of tube, $\frac{3}{4}$". Length of *0168*, $4\frac{3}{4}$"; width at widest, $1\frac{1}{4}$"; diam. of tube, $\frac{9}{16}$". Pl. LXXI.

**Kao. III. 0169. Fr. of steel knife blade.** Narrow at tang and broadening rapidly towards (now) rounded end, which is probably the cutting edge. One side edge blunt and the other, broken away, was probably the same. Both sides smooth. Shouldered thickly like modern table-knife, but more projecting on one side than other.

Tang round and hollow; one side broken away. Rusted and much of blade corroded away. Length $3\frac{5}{8}$"; gr. width 1", gr. thickness of blade $\frac{1}{8}$"; length of tang $1\frac{3}{8}$"; diam. of tang $\frac{5}{16}$". Pl. LXXI.

**Kao. III. 0170. Steel knife blade.** Single-edged; back $\frac{1}{4}$" broad, flat and straight almost to point, near which it is slightly convex but turns back again very slightly at point. Edge curves gently to point. One side of blade is hollow-ground and the other flat. Broken; tang and haft missing. Length 4", width at break $\frac{9}{16}$". Edge keen. Rusted but well preserved. Pl. LXXI.

**Kao. III. 0171, 0172. Two steel knife blades.** Single-edged; back flat and straight turning slightly backward towards point. Edge converging towards point in double curve, concave at wide end and convex towards point. Tang tapering from sharply shouldered butt of blade. Blade smooth on both sides, but 0172 with faint groove running from shoulder a short distance, close to back, and on same side as hollow-grinding of 0170. Point of 0171 curled over sideways.

Both rusted but well preserved. *0171*, length $4\frac{1}{4}$", width at base $\frac{7}{32}$", thickness of back $\frac{1}{32}$", length of tang 1", gr. width of tang $\frac{1}{4}$". *0172*, length $3\frac{1}{4}$", width at base $\frac{5}{8}$", gr. thickness of back $\frac{1}{16}$", length of tang $1\frac{1}{4}$", gr. width of tang $\frac{1}{4}$". Pl. LXXI.

**Kao. III. 0173. Steel knife blade,** similar to 0172, but tang missing. Groove more pronounced, and imperfect circle and dot punch-mark on same side as groove and near base. Rusted. Length $2\frac{1}{4}$", gr. width $\frac{3}{32}$", gr. thickness $\frac{1}{16}$".

**Kao. III. 0174. Steel knife.** Blade similar to 0172, but shorter and more concave on line of edge. Faint groove near back and transverse groove across base. From base, steel continues in a kind of handle, broken away at end, gradually broadening but forged into thin sheet. This bulges slightly on grooved side of knife and has edges turned up to form shallow channel on other side. A wooden or bone handle may have been placed in this channel and, in some way not clear, fastened to it.

Blade bent into flame-like waves. Rusted. Length over all 4"; blade $1\frac{3}{8}$"; gr. width of handle $\frac{3}{4}$"; gr. width of blade $\frac{5}{8}$"; gr. thickness of blade $\frac{1}{32}$". Pl. LXXI.

**Kao. III. 0176, 0177. Two brass seals,** joined by twisted silk cord. *0176* oblong, with projecting shank on back pierced for cord. Device on face, in intaglio, a bold lapidary Chinese character read by Mr. L. C. Hopkins 吉 'good fortune', with a simple line frame; deeply cut for impressing on clay. $1\frac{1}{4}$"×$1\frac{1}{4}$"×$\frac{1}{8}$". Well preserved. Pl. LXXI.

*0177*. Inverted bell shape, vandyked into three points at 'mouth'. Large pierced shank at back. Device on face; in relievo, outline of bell shape and vandykes. Below vandykes a line slightly curved from side to side. A second line parallel to first where rounded 'top' of bell begins.

Between the two lines, a Chinese lapidary character, read by Mr. L. C. Hopkins 記 *chi*, 'seal'. Below bottom line two vandykes and other detail occupying rounded end, not clear. Seal intended for use with ink. Well preserved. $\frac{15}{16}$"×$\frac{7}{32}$"×$\frac{1}{8}$". Pl. LXXI.

**Kao. III. 0178. Half of bronze ring,** round in section. Diam. $1\frac{5}{8}$", thickness $\frac{3}{16}$".

**Kao. III. 0179. Fr. of iron handle** or loop; stirrup-shaped. Square section. Upper end thinned and bent into small loop. Slightly rusted; similar to Kao. III. 012 but smaller. Height $1\frac{5}{16}$", width $\frac{3}{4}$"; section *c.* $\frac{5}{32}$" sq.

**Kao. III. 0180. Small iron spear or javelin head.** Two edges; blade thick down centre. From shoulder at butt sides curve gently outwards to max. width where cutting edges begin. Tang cylindrical, broken. Corroded. Length over all $2\frac{1}{4}$"; tang $\frac{7}{16}$"; shoulder to cutting edges 1"; gr. width $\frac{5}{8}$"; thickness at shoulder $\frac{5}{16}$"; thickness of tang $\frac{5}{16}$". Pl. LXXI.

**Kao. III. 0181. Iron hook,** with flat recurved stem (two layers of metal) and round flat head through which is rivet. Hook end broken off at bend. Rusted. Length $1\frac{7}{16}$", average width $\frac{3}{8}$".

**Kao. III. 0182. Iron rod** bent into form of small triangle, the ends overlapping at one side. Rusted. H. $\frac{7}{16}$", base $\frac{7}{32}$".

**Kao. III. 0183. Fr. of brass orn.,** flat, stirrup-shaped, with projecting pierced ring at top and each corner. Face orn. with line of small incised circles between parallel lines, following outline of orn., and broken only by small curved line drawn round holes at corners and top. Roughly made. H. 1", gr. width $\frac{15}{16}$".

**Kao. III. 0184. Fr. of iron,** roughly oblong in section, tapering; from obj. indeterminable. Gr. M. $1\frac{3}{8}$".

**Kao. III. 0185. Small copper plate;** rectang., double, front and back held together by copper rivets at four corners. 1" × $1\frac{1}{16}$".

**Kao. III. 0186–91. Six frs. of brass foil;** various shapes, crumpled, with rivet-holes; uses uncertain. *0188* bent round small flat bronze obj. with rounded end; *0190* also bent into tube. Gr. M. (0186) $1\frac{1}{2}$".

**Kao. III. 0192. Fr. of bronze plate;** thin, oblong. Crumpled and cracked, with rivet-hole in two corners and two others near other corners. Ends broken. $1\frac{1}{4}$" × $\frac{13}{16}$".

**Kao. III. 0193. Fr. of whitish grey metal;** irregular shape. Gr. M. $\frac{13}{16}$".

**Kao. III. 0194. Iron ornament,** forming part of attachment, prob. from harness. In form of perpendicular bar, turned back at top to form loop through which is ring. $\frac{1}{2}$" below top is wide straight cross-bar, and lower end forks into two shorter up-curving arms. Ends of cross-bar and arms rounded, each with rivet at back, one apparently holding fr. of leather. Back flat; edges in front, rounded. Well made; rusted. H. $1\frac{3}{4}$", width of cross-bar 2", diam. of ring $\frac{11}{16}$". Pl. LXXI.

**Kao. III. 0195–6. Two bronze rings,** round in section; plain, good condition. Outside diam. (*0195*) $1\frac{1}{8}$", (*0196*) $\frac{7}{8}$"; thickness $\frac{3}{16}$" and *c.* $\frac{1}{8}$".

**Kao. III. 0197. Iron (?) ring,** rectang. in section, rusted. Diam. $1\frac{5}{16}$", thickness $\frac{1}{8}$".

**Kao. III. 0198. Iron (?) strap-loop;** flat strip bent into form of oblong, the ends overlapped and welded, with one long side slightly pinched in. Slightly rusted. Loop $1\frac{1}{4}$" × $\frac{11}{16}$" (gr. width).

**Kao. III. 0199. Iron (?) ring,** irregularly circular, made of flat strip bent into shape; ends overlapping. Slightly rusted. Diam. *c.* $\frac{9}{16}$".

**Kao. III. 0200. Iron ornament;** of long lozenge-shape, terminating at one end in stem which bifurcates to R. and L., each branch forming double curve. All outer edges rounded off. At back of lozenge two rivets still holding frs. of leather. Prob. from harness; rusted. Length $1\frac{3}{4}$", gr. width of lozenge $\frac{5}{16}$", width across branches $1\frac{1}{16}$", thickness $\frac{1}{8}$".

**Kao. III. 0263. Fresco fr.:** shows on white ground an attenuated nude grey demon with red lips and straggling hair on chin and armpits, leaping $\frac{3}{4}$ to L. with upraised arms and head looking down. Length of leg from knees to ankles exaggerated; feet, small. Gobbets of flame are scattered on background. Work very careless, but drawing of L. p. shoulder shows knowledge of correct form. Yellow band and red paving as in Kao. III. 031, of which it probably is a part. $9\frac{1}{4}$" × $9\frac{1}{4}$".

**Kao. III. 0264. Frs. of cloth.** (*a, b*) Coarse canvas with a few grey-blue painted lines. *c.* 2" × 4". (*c*) Pink woollen material with floral pattern in yellow silk (?). 3" × $1\frac{1}{4}$". (*d*) Finer silk material, plain with traces of paint. Ragged. 3" × 2".

**Kao. III. E. 01. a–b. Two frs. of printed silk.** Plain firm texture, printed with dull red ground and flower pattern in 'resist'. In (*a*) several pieces joined, the majority showing rows of formal five-petalled rosettes, 18" × 8". (*b*) shows sprays of less conventional five-petalled flowers with leaf. $7\frac{1}{4}$" × 5". Pl. LXXXVI.

**Kao. III. E. 02. a–c. Three fabric frs.,** from passage floor. (*a*) Two frs. of silk tapestry. Weft of one (pink, green, yellow and black) almost completely gone and design irrecoverable; warp of thick twisted threads of natural-coloured silk beautifully made. Other a strip with black, cream, jade green, and yellow weft showing fragmentary design. Both very finely worked. 7" × (gr. width) $1\frac{1}{2}$" and $5\frac{1}{4}$" × (gr. width) $\frac{7}{8}$". (*b*) Fr. of loosely woven woollen fabric in checked design of blue, red, and white. $4\frac{3}{8}$" × $\frac{7}{8}$". (*c*) Scrap of silk, printed with dark-blue ground and pattern in resist of which only two trefoil-heads remain. Clogged with sand. 3" × $1\frac{1}{4}$".

**Kao. III. B. 03. Wooden inkpot;** cylindrical, thin walls, rounded inside bottom. Originally covered outside with black lacquered leather which still remains on bottom and part of side. Lip broken and split, with black band of paint on outside. Blackened with ink inside, and containing ink-soaked woollen rag. Height $1\frac{3}{4}$", diam. $1\frac{3}{8}$". Pl. LXXI.

OBJECTS EXCAVATED IN QUARTERS KAO. IV, V

**Kao. IV. 01. Iron arrow-head,** with three blades projecting from central tapering ferrule; blades thin, sharp-edged, only slightly barbed. Ferrule swells in diam. to $\frac{5}{16}$", $1\frac{3}{8}$" from head; then is suddenly cut down to $\frac{3}{16}$" diam. and ends in long tapering tang. Rusted. Length of whole $5\frac{3}{8}$", of tang $2\frac{11}{16}$", of head $1\frac{1}{2}$", gr. width of blades $\frac{3}{4}$". Pl. LXXI.

**Kao. V. 01. Fr. of double-sided wooden comb,** coarse and fine. 3" × 2" × $\frac{7}{16}$".

**Kao. V. 02–9. Wooden 'sacrificial' pegs.** Rough pieces of cherry (?) wood with bark on, sharpened at one end into three-sided point, the other end rough and showing evidence of having been hammered. 02 and 07 have Uigur characters written on cut surfaces. 06 is unlike the others, being round, smooth and sharpened with many facets. Av. length $2\frac{1}{4}$", av. thickness $\frac{5}{8}$". Pl. LXXI.

**Kao. V. 010. Fr. of glass;** spongy, pale green; slightly curved. $\frac{7}{8}$" × $\frac{7}{8}$".

**Kao. v. 011. Fr. of blown glass,** showing characteristic scaling and iridescence due to decomposition. 5/8″ × 3/4″.

**Kao. v. 012. Bronze collar,** oblong, broken at one corner. 15/16″ × 5/8″ × 1/4″.

**Kao. v. 013. Fr. of pottery,** red, coated with fine blue glaze. Elliptical, broken at one end. Probably attachment of handle or other applied part. 3/4″ × 1/2″ × 3/8″.

**Kao. v. 014–15. Two frs. of combs.** 014 wooden, part of arched back with teeth; gr. length 1 3/8″, thickness 1/8″. 015 horn, straight-backed; part of back only, teeth broken off. Length 2 3/8″.

**Kao. v. 016. Corner of brick;** grey, moulded in relief on face with border showing spirals, boss within raised circle, long-tailed bird (?), and other details indistinguishable. Considerably worn. Raised line on inner side of border, and possibly traces of design on field. 5 1/2″ × 3″, thickness 2″. Pl. LXIX.

**Kao. v. 017. Two frs. of plain cotton (?) canvas;** natural buff, showing part of line of embroidered rosettes in dark blue. Rosettes small circular, eight-petalled. Ragged. Gr. length 14″.

**Kao. v. 018. a–c. Three small frs. of silk fabric.** (*a*) Plain buff. Gr. M. 2 1/4″. (*b*) Fr. of greenish-indigo silk, perhaps originally figured but too perished to interpret now. Structure similar to (*c*), the thinner weft having yellow picks in it. Ragged. Selvedge on one edge. 4 1/2″ × 1″. (*c*) Scrap of dull crimson figured silk, worked in scrolled pattern of fine stems and small leaves in a crimson darker than the ground. The outlines now present a series of holes where perhaps was originally a colour (gold ?) now gone. Warp is silk and relatively thick, forming a rib; weft of two thicknesses, both thinner than warp. Selvedge at one side. 7/8″ × 5/8″.

**Kao. v. 019. Fr. of woollen (?) tapestry;** in dark brown and blue, on buff; showing large brown chrysanthemum leaf and conventionalized stems, &c. Leaf is surrounded by a buff outline varying in width from 1/8″ to 1/4″. Near one edge is what seems to be a second leaf of same type, in blue. At base of first leaf are two short blue bands fused together near leaf stem and diverging as they leave it. 10 1/4″ × 7″. Pl. LXXXVII.

## Section III.—SEARCH AMONG THE RUINS OF TOYUK

On November 15th I was able to leave Kara-khōja for a short tour to the north-east of the Turfān depression, after seeing the two surveyors duly started on their respective tasks. My main object was to acquaint myself with the topographical aspects of the ground that lies along the northern foot of the rugged outer range overlooking the Turfān basin proper, which I had not hitherto been able to visit in person. I hoped further to ascertain which of the ruins in that direction still offered any chance of useful excavation and to pay a rapid visit to the magistrate of the Pichan district, whose assistance would be needed in connexion with the survey work. The useful geographical observations gathered on my way through the defile of Toyuk and thence past the oases of Su-bāshi, Lamjin, and Khandō to Pichan, particularly with regard to the Kārēz irrigation which accounts for their recent expansion, will have to be recorded elsewhere. *Move to Pichan.*

In Pichan, which I had already visited in 1907, the Kārēz-irrigated area appeared to have been substantially extended in the interval. Its present official designation of *Shan-shan* may well serve as a warning against attaching too much value to Chinese identifications of ancient localities in the 'Western countries', as expressed in the archaistic revival of old local names after the eighteenth-century conquest of the New Dominion. It is easy to recognize that the application of the name *Shan-shan* to Pichan was in all probability prompted by the wrong interpretation of Chinese notices relating to the oasis of Lapchuk, west of Hāmi, which, as M. Pelliot has rightly shown, was in the sixth century colonized by emigrants from Shan-shan, i. e. Lop, but never had any administrative or other direct relation with the ancient Shan-shan territory, which is separated from it by hundreds of miles of impassable desert.[1] *Pichan wrongly renamed Shan-shan.*

Before turning to the interesting site of Toyuk, where on my return from Pichan I found

[1] Cf. Pelliot, *J. As.*, 1916, jan.-févr., pp. 117 sqq., note. The texts indicating and explaining the erroneous location by modern Chinese scholars of Shan-shan at Pichan are quoted by M. Chavannes in his comments on the *Wei-lio's* notice concerning the route of the centre, *T'oung-pao*, 1905, pp. 531 sq., note. For the reasons which render the conjectural location of Shan-shan whether at Pichan or at Na-chih, i. e. Lapchuk, equally untenable, see also *Serindia*, i. p. 337, note 13.

Oasis of Lamjin.

opportunity for useful archaeological work, I may briefly mention such old remains as I was able to visit on this short tour. The bed of the stream which descends from Ortang-aghzi and lower down irrigates the Lukchun oasis is wide but usually for the most part dry; where this approaches the outer hill range before breaking through it, there lies along the northern foot of those hills and on either side of the stream the small oasis of Lamjin. It is reckoned at about four hundred households and forms part of the Pichan district. From the house of its headman or 'Shangye', situated near where the high road to Pichan crosses the stream bed, I visited on November 18th a group of old remains situated to the south-east along a tributary stream. This is fed by springs rising near the neighbouring oasis of Khandō, and joins the Lamjin stream some three miles to the south of the high road. The remains were said to have remained unexplored except for some diggings by Ilyās, a native dealer in antiques; some graves had also been searched on behalf of a Pichan 'Amban'.

Mazār of *Yetti-kiz-khōjam.*

After proceeding to the south-east for about two miles to the edge of the main cultivation and then crossing a bare gravel plateau, we dropped down to a narrow strip of fields tilled by the dozen households of Yutōgh and situated along the deep-cut bed of the stream coming from Khandō.[2] Close above its left bank a gravel plateau rises very steeply to a height of about eighty feet, bearing on its top the Mazār, known as *Yetti-kiz-khōjam*, 'the Seven Holy Maids', and visited as a place of pilgrimage. Near the shrine stand seven domed tombs of small size, a mosque and some roughly built shelters for pilgrims, and along the edge of the cliff extends a Muhammadan graveyard. I was not able to obtain any clear account of the legend of the 'Seven Holy Maids'; but pious eyes recognize them in seven boldly eroded rock pinnacles standing on a crest of the rugged hillside to the south, about six hundred feet above the stream. This makes it clear that the place owed its sanctity to worship as a kind of *svayambhū-tīrtha*, worship obviously going back to pre-Muhammadan times.

Pre-Muhammadan cemetery.

Evidence of this is furnished by crumbling walls and vaults, manifestly old, which line the side of the cliff eastwards immediately below the shrine and tombs, and by three small cemeteries, undoubtedly pre-Muhammadan. As the sketch-plan, Pl. 26, shows, they are found on a continuation of the terrace beyond a small ravine to the east. The low mounds of rubble forming rectangular enclosures around these cemeteries, and the roughly circular heaps of stones and gravel that mark the position of the tombs cut into the ground below, are of exactly the same type as those found at the extensive ancient burial-grounds near Astāna which I shall have occasion fully to describe below.[3] In the largest of the Yutōgh cemeteries we found one among six tombs opened, and guided by the indications which its construction afforded were soon able to trace the narrow trench which formed the approach to the tomb nearest to it.[3a] It proved to be two feet wide, and at a depth of 12 feet led to a small tunnel of similar width, closed by brickwork at its inner end. The condition of the closing wall showed that the tomb chamber had not previously been entered; nevertheless, the interior, which measured 8 feet by 9 when cleared, yielded no finds whatever. The bottom of the chamber was covered with damp earth which must have fallen from its ceiling, and the penetration of moisture explained the complete decay of what the tomb had once contained. But at the outer end of the approach trench to the nearest tomb on the south we came upon a roughly cut wooden stick, about two feet long, showing on its flattened side a line of Chinese characters, evidently a funeral record. [Dr. L. Giles kindly informs me that the inscription mentions 'the grave site of Chao Chin-hsiang' and a date corresponding to A.D. 671.]

[2] This very narrow strip of cultivation extending from about a mile and half below Yetti-kiz-khōjam to the village of Chuwānkir, the easternmost portion of the Lamjin oasis, ought to have been marked in Map No. 28. D. 3.

[3] See below, ii. pp. 642 sq.

[3a] Marked with an arrow in plan Pl. 26.

**Continuity of local worship.**

The unfavourable conditions of the soil disclosed by this trial excavation made it inadvisable to proceed with the work at other tombs of this site. Nor did we obtain any better result from the clearing of a small ruined structure, manifestly a Buddhist shrine, situated about 200 yards farther east near the edge of the terrace. It was said to have been dug up by Ilyās and to have yielded some small stucco images. Its walls of sun-dried bricks were found to be broken within a few feet from the ground, and all that we learnt from the excavation carried out by Naik Shamsuddīn during my visit to Pichan was that the structure had once consisted of a small cella and circumambulatory passage measuring about 34 feet by 27 outside. The similarity of the masonry with that found in parts of the walls enclosing the mosque of the present Muhammadan Mazār suggests that the latter was actually built into the ruins of a Buddhist sanctuary. We have here another illustration of that continuity of local worship so often observed elsewhere.

**Rough quarters on ridge above Mazār.**

Local reports that old walls were to be found on the steep and utterly bare sandstone ridge that rises above the Mazār induced me to send Afrāz-gul to the spot. I myself was still much hampered by the condition of my injured leg, which did not allow me to walk more than a few hundred yards at a time even on level ground. Afrāz-gul, after a stiff climb, reached the top of the ridge at an elevation of about 1,500 feet above the Mazār, and found there low remains of roughly built stone walls enclosing three small detached rooms aligned in a row. Mixed with the refuse, mainly of straw and horse-dung, found within them, there were fragments of pottery and coarse fabrics, as shown by the specimens described in the note below.[4] The former and the fragment of a turned wooden leg, Yut. 04, appear to be old, as do the fragments of Chinese documents on paper which were discovered in the easternmost room. [In one of them Dr. L. Giles has noted the date, A.D. 743.] What purpose these rough quarters served, at a spot far removed from traffic or water, is puzzling. Possibly they may have sheltered a look-out post.

**Buddhist shrine below Yutōgh.**

About a mile and a half lower down, on the right bank of the Khandō stream, there rise the badly injured ruins of what must have once been a large Buddhist shrine, with monastic quarters attached. The most imposing features of the otherwise much-decayed ruins are the outer north wall of the whole structure (see the sketch-plan, Pl. 26), which in parts still rises to over 25 feet, and the tower-like image base, 13 feet square in the outer court. This contains niches for four large images, now completely destroyed, and stands to a height of about 18 feet. The lower portion of the base and all the walls is cut out of the solid clay of the terrace, and the upper portion is constructed of stamped clay. The interior of the several rooms built round a central court was found completely bare, the position of the ruin on a comparatively steep slope having facilitated erosion. But round holes in the flooring of two rooms remain to mark the places where large jars probably once stood for the storage of grain, &c.

**Cave-shrines below Yutōgh.**

Half a mile farther down the gorge, also on the right bank, lies a group of small caves, badly injured by the decay of the loose conglomerate into which they are cut, and also by vandal hands. About 30 feet above a narrow strip of cultivation two vaulted rooms open from a small terrace, one measuring 10½ feet by 2½ and the other 8 feet by 7. Their plastered walls were so much begrimed

[4] **Yut. 01. Fr. of pottery;** pinkish-grey clay, thick, strongly convex, outside orn. with two bands of small rude chevron orn. drawn with toothed instrument. 3" × 2¾" × ½".

**Yut. 02. Fr. of pottery;** reddish-grey clay, wheel-made; no orn. 1 3/16" sq. × ¼".

**Yut. 03. Fr. of pottery;** reddish-grey clay, thick, rough, hand-made; no orn. 2" × 1¾" × ½" to ¾".

**Yut. 04. Fr. of turned wooden finial,** or short turned leg of wooden stand. If taken as leg, is of flattened globular shape in upper part, with sharp-edged moulding above sloping back to flat top. Below, rounded moulding, from which foot spreads out in concave curve. Only about one third of circumference preserved. Wood soft. H. 3¼", gr. diam. was *c.* 2¾".

**Yut. 05. Lump of goat's hair,** brown and yellow, partially felted, and grass fibre. 3¼" × 2½".

**Yut. 06. Fr. of cotton (?) fabric;** loose plain weave, wrapping lump of raw cotton and pod (?). Fabric 4½" × 4".

with smoke and scratched all over that it was impossible to make out whether they were ever painted. On a level about 20 feet higher, a row of six small caves is cut into the crumbling rock face. The two westernmost are of rectangular shape and retain traces of mural decoration no longer distinguishable in character. Next follows the small shrine of which Pl. 26 shows a sketch-plan. In it a rectangular pillar spared from the rock, which once, no doubt, as in similar caves at Ch'ien-fo-tung, served as a backing for images, is surrounded by a circumambulatory passage. Its walls were formerly decorated with frescoes; but all that could be made out were remains of a dado showing traces of ornamentation with pendent triangles separated by tassels, which reminded me of the wall decoration in the hall of the Niya ruin N. III.[5] There were traces of wall-paintings also in two small caves adjoining on the east and communicating with each other. Finally, at the eastern end of the row and projecting farther to the south, a now roofless cave appeared to have served as quarters while the rest were still used for worship.

Watch-tower of *Lamjin.*

There remain to be mentioned the ruins of two large watch-towers, manifestly old, which form conspicuous landmarks near the line followed by the high road between Su-bāshi and Pichan. Judging from their uniform proportions and the use of bricks of the same size, 13" × 8" × 4", they may be ascribed to an approximately identical period. The better preserved of the two stands on rising ground at a distance of about two and a half miles to the west of the point where the high road crosses the Lamjin stream, and still rises to a height of over 30 feet. As the sketch-plan (Pl. 26) prepared by Afrāz-gul shows, it appears to have originally consisted of a tower 19 feet square, which contained a chamber a little over 8 feet square, and was probably once divided into several stories by a timber flooring. The tower was subsequently enlarged by the addition on all four sides of a mass of masonry 20 feet thick. Room was left between it and the original tower for two flights of stairs, 4 feet wide, which wound round this core and led up to the top of the enlarged structure. Access to the stairs is gained by two vaulted passages leading through the walls added on the east and the west. Within the masonry of the enlargement a number of small vaulted recesses occur, some approached from the stairs, some apparently having had their entrances from the top. They, no doubt, were intended, like the *kemers* of modern Turfān houses, to give cool shelter during the fierce heat of the summer.

Watch-tower of *Khandō.*

The other tower, appropriately known as *Yoghan-tura*, 'the big tower' (Fig. 306), stands on the top of one of the steep gravel-covered hillocks which fringe the cultivated area of Khandō on the east (Map No. 31. A. 3). It has suffered a good deal by the burrowings of 'treasure-seekers', particularly at its south-eastern corner. Though the masonry had been tunnelled into at various points on all sides, no vaulted passages or stairs were traceable. Here too, however, the present structure was the enlargement of an earlier core, as was evident from the fact that plastered wall surfaces showed at several points in the centre above the encasing masonry and revealed the existence of an original tower about 16 feet square embedded within it. The tower commands a very distant view both across the bare Sai stretching to the north and east and over the cultivated area westwards.

Road from Lamjin to Sirkip.

The route on my return to Toyuk lay down the picturesque valley, gradually narrowing into a gorge, in which the stream of Lamjin breaks through the outer hill range between cliffs of red clay and sandstone. The cart road descending the gorge below the confluence with the Khandō stream leads in places through artificial rock cuttings, but it is impossible to say which, if any, of them are old. About a mile below that point the road passes the large detached boulder of sandstone known as *Tamguluk-tāsh*, bearing on two of its faces relievo representations in niches of Buddhist scenes. They have been described in full detail by Professor Grünwedel,[6] and no further

[5] See *Anc. Khotan*, i. p. 333; ii. Pl. VII.

[6] Cf. Grünwedel, *Altbuddh. Kultstätten*, pp. 315 sqq.

reference to them is here needed. Two miles farther down, the gorge opens out upon the narrow strip of cultivation known as Lukchun-aghiz, past which the road towards Lukchun descends to the village of Sirkip. In the midst of its houses and gardens rises the imposing Buddhist pile known only by the designation of *Sirkip-tura*, 'the tower of Sirkip'. It has been briefly described already by Dr. Klementz;[7] and has, no doubt, been visited also by succeeding archaeological expeditions. But as I can trace no exact account of its structural details, the following record may be useful.

Ruin of *Sirkip-tura*.

The 'tura' of Sirkip, like the two corresponding ruins of Taizan at Astāna and of Āt-hayasi (Grünwedel's temple *V*) at Idikut-shahri,[8] is a terraced shrine planned after the general model of the famous Buddhist sanctuary at Bōdh-Gayā. In all three the successively receding stories of a structure square in its ground-plan were decorated with niches each containing the stucco image of a Buddha seated in meditation. At Sirkip, however, the number of niches and images remains the same on all the stories, instead of gradually diminishing as at Āt-hayasi, and only their size is reduced. As the sketch-plan in Pl. 28 shows, the pile forms a solid square of 48 feet at the base which is built of stamped clay to a height of 10½ feet. The sides of this base were plain and have completely lost whatever stucco ornamentation they may once have possessed.

Storied structure of shrine.

Slightly receding stories rise above the base, and each of these, on each of its four sides, originally displayed seven flat-arched niches containing Buddha images. Of these stories or terraces six are still extant, as seen in Fig. 316, where the eastern side, which has suffered less damage than the rest, is represented. From the broken appearance of the top, it is probable that there was originally one more story with niches on it, and perhaps some finishing superstructure besides. The lowest of these stories has completely lost both niches and images. But that the latter originally existed is proved by the holes still to be seen in the masonry which once held beams to which the wooden framework of the stucco images was fastened. Timber was inserted in other places also, to reinforce the masonry and to support the plaster of the niches. Each successive story receded only by two feet or less as compared with that immediately below it. It was consequently impossible to gain access with safety to the outsides of the stories above the lowest, and it is doubtless due to this that the Buddha images in many niches escaped wilful destruction. The total height of the extant structure could not be exactly measured, as the top is no longer accessible; but it certainly exceeds 50 feet even in its present broken condition. Its south-western corner has suffered much damage, and the bricks quarried from the debris at this point have found their way into many of the houses in the village.

Transverse passage and stairs of interior.

The same destruction has overtaken the flight of stairs that probably once led up to the vaulted passage which, as seen in the plan (Pl. 28), traversed the whole pile from north to south and gave access to spiral stairs leading to the top of the structure. This transverse passage had a uniform width of 4 feet and a height corresponding to that of the second and third stories combined. It was examined by Afrāz-gul, the condition of my leg making it impossible to clamber up to it. Its openings both on the northern and southern faces lay in places which otherwise would have been occupied by the third niche from the east. But owing to the damage which these faces have suffered just near the openings it is impossible to say how they were fitted into the general decorative scheme. The more extensive destruction near the opening on the northern face (Fig. 317) makes it appear probable that the proper approach to the transverse passage lay on that side, and that the passage was extended to the southern face merely for the purpose of securing adequate light and air for the spiral stairs. These are 3½ feet wide where they strike off from the eastern side of the passage, and winding round a circular core of masonry about 12 feet in diameter gradually grow narrower. Higher up they break off, owing to a fissure which has occurred in the interior

[7] Klementz, *Expedition nach Turfan*, pp. 31 sq.

[8] Grünwedel, *Idikutschari*, pp. 49 sqq., 175; Figs. 43-6; *Ser.* iii. Fig. 272.

of the masonry, and now leave the top inaccessible. It is certain that there was no place of worship within the structure, though it is possible that the top once contained one. The bricks used throughout measure 14 inches by 9 with a thickness of 4 inches. Traces of red paint, perhaps used as a grounding for fresco-work, could be made out at the back of some of the niches. It is certain that these, as well as the Buddha images, were once painted, and their colour effect must have greatly added to the impressive appearance of this tall and well-proportioned pile.

Village of *Toyuk.*

On November 23rd I returned to Toyuk and halted during the next fifteen days at that most picturesque of all Turfān localities. During this halt I devoted as much time as my other duties would allow to the work which my previous reconnaissance of the often-searched ruins of Toyuk suggested as still worth undertaking. The lively stream descending from Su-bāshi to Toyuk spreads fertility immediately below the mouth of a strikingly rugged and gloomy gorge. The natural attractions of the site, greatly heightened by the contrast between the luxuriance of the little oasis and the utterly barren and weirdly eroded hill-sides above it, must have made Toyuk in ancient times, as it is now, a much-frequented place of pilgrimage. The prosperity secured to it by the far-famed produce of its vineyards and orchards (Fig. 312) and by its easy accessibility from the chief oases of the basin made it no doubt, at all times, easy to provide for those who looked after the shrines here established. Nor was it difficult, at a site so favoured, to assure sustenance for those pious poor, whether Buddhist pilgrims of old or Muhammadan mendicants in later times, who chose to pay their devotions to the holy spot, and eventually settled down there for good. Since the many Buddhist shrines and monastic retreats in the gorge were finally abandoned as a result of the victorious spread of Islām, local worship has maintained itself with equal tenacity and success by placing the well-known Muhammadan version of the legend of the 'Seven Sleepers' at the much-frequented Mazār of Aṣahāb-Kahaf immediately below the mouth of the gorge (Fig. 312). Like previous visitors with archaeological interests, we found a kindly welcome there in the spacious house of Kare Ākhūn, Chirāghchi, the chief attendant of the Mazār.

Destruction among Buddhist ruins.

The many cave-shrines and temples to be found along both sides of the gorge for a distance of about a mile above its mouth had suffered a great deal of destruction both from vandalism and from treasure-seeking operations, even before Dr. Klementz furnished the first brief description of them.[9] Where, owing to the accumulation of heavy debris or for other reasons, manuscript remains and other antiques were likely to have escaped local exploitation of the kind practised at Idikut-shahri, the caves had, for the greater part, been carefully searched, with important results, in the course of Professor von Lecoq's Turfān expedition of 1904–5.[10] Subsequently, in 1907, Professor Grünwedel had devoted his expert iconographic knowledge and artistic skill to the study and record of whatever paintings had survived on the walls of the more important caves and temples.[11] Since then destructive diggings by natives had proceeded unchecked in spite of the diminishing yield of antiques. They were said to have been particularly stimulated by Maḥmūd 'Jīsa', the Kara-khōja headman, who, before he fell a victim to Aḥmad Mullah's *émeute* in the preceding spring, appears to have been collecting the proceeds in the shape of manuscripts, &c., for sale or as presents to Chinese officials at Turfān and Urumchi. The result of these operations was to be seen in the disturbed condition of some smaller ruins which in November, 1907, I had found still apparently untouched.[12]

I was therefore obliged to confine my own work to those few spots where heavy accumulation of debris or other difficulties of the kind appeared to have deterred the diggers, and to the rescue

[9] See Klementz, *Expedition nach Turfan*, pp. 35 sqq.

[10] Cf. Von Lecoq, *Chotscho*, passim.

[11] See Grünwedel, *Altbuddh. Kultstätten*, pp. 317 sqq.

[12] One of these ruins recently disturbed is seen in the foreground on the right of Fig. 309.



**309.** RUINS ON WESTERN SIDE OF TOYUK GORGE, SEEN FROM NORTHERNMOST SHRINES.



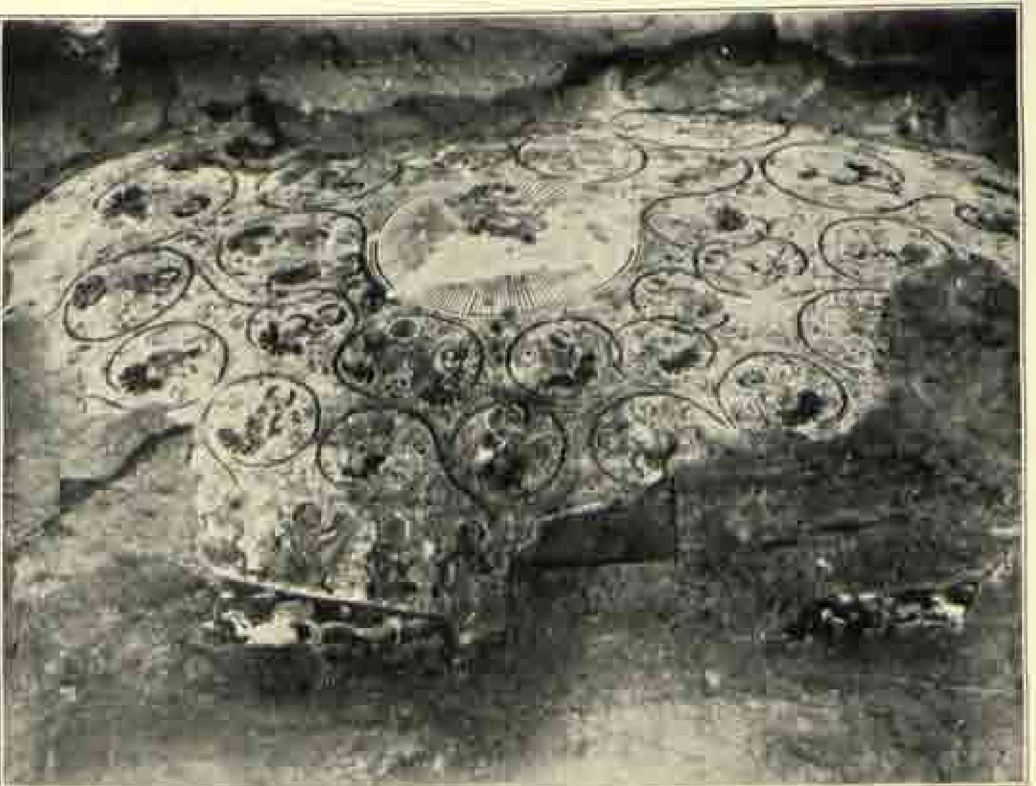
**310.** NORTHERNMOST GROUP OF RUINED SHRINES IN TOYUK GORGE.

**311.** RUINED SHRINES ON WEST SIDE OF TOYUK GORGE, SEEN FROM RUIN TOY. VI.

Arrow marks position of main group of shrines, Toy. IV.



312. MAZĀR OF THE 'SEVEN SLEEPERS', TOYUK, LOOKING TOWARDS MOUTH OF GORGE.



313. PAINTED CEILING OF SHRINE, TOY. VI, TOYUK.



314. CAVE-TEMPLES AND SHRINES IN SOUTHERN PORTION OF BEZEKLIK SITE.



315. BUDDHIST SHRINES IN NORTHERN PORTION OF BEZEKLIK SITE.

of such remains of mural paintings as still survived in a few accessible cave-shrines. Accordingly I decided to begin by clearing an area situated at the foot of the northernmost large group of ruined shrines on the left side of the gorge (Fig. 310). Niāz, an old frequenter of the site, said that in his youth he had seen at this spot remains of small structures, some vaulted, which had since been completely covered up and hidden by the debris thrown down on the fan-like slope in the course of the clearing of the big central temple above. Excavation was started from the foot of this slope, where it ends in precipitous cliffs of clay rising above the irrigation cut that carries water from the stream to the eastern portion of Toyuk cultivation. On this lowest level two rooms were laid bare, with remains of brick walls built against the vertically cut clay face eastwards (see plan in Pl. 25). Small torn pieces of Chinese manuscript rolls, apparently containing Sūtra texts, were found in one of them. Separated from these rooms by a narrow passage which has once been vaulted, a hall or court, ii, extended northward, of which only the back wall cut into the natural clay and a small portion of the southern wall survived. Within this hall there were found on the floor and covered by fallen brickwork many Chinese manuscript fragments of the kind just mentioned, but including also large pieces, among them a few with Uigur or Tibetan writing on the reverse. This use of the reverse of Chinese Sūtra rolls for Tibetan or Uigur texts is similar to that observed at Ch'ien-fo-tung and points to late occupation of the ruined shrines in this group, a conclusion fully borne out by other observations.[12] Beyond Toy. I. ii, excavation on the lowest level was stopped when the natural surface was reached.

Work at northernmost ruins, Toyuk gorge.

As the excavation proceeded eastwards up the slope, work became more difficult owing to the heavy debris, including masses of brickwork, overlying the original slope to a depth of 8 or 9 feet. In two small rooms cleared to the south of the area small fragments of Chinese and Tibetan manuscripts were recovered, and besides them a few fragments of stucco relievo that probably belonged to some image destroyed in a shrine higher up. Two shoes, Toy. II. 02–3 (Pl. LXVI), of excellent make, one woven in string and the other quilted, were also discovered here, besides the string sandal, 04. The clearing farther to the north had to contend with increasingly deep masses of debris, but after heavy labour reached a cella, about 17 feet square, whose walls near the entrance still showed faint traces of paintings. Two vaulted passages which adjoined the cella on the north and east were found to be filled with hard mud that had been carried down by rain. Within and outside the cella a number of manuscript fragments in Chinese and Uigur were recovered. The miscellaneous finds included numerous pieces of pottery vessels, some of superior make with decorated or polished surface (Toy. III. 06, 8, 9, 12, 17–19, &c., Pl. CIII); fragments of a woollen pile carpet, 01, and numerous fragments of silk fabrics, among them several damasks and figured silks, 033–4 (Pl. XLIII, LXXXV). Here too was recovered the fairly well preserved knife, III. i. 02, in its lacquered silver-bound sheath, which also still contained two black wooden chopsticks.

Remains excavated at Toyuk II, III.

These excavations, which were much hampered by the constant sliding down of debris from the higher slopes, showed that the structures to be found here were already much decayed before they had been buried by the earth, brick debris, and boulders thrown down from above. As the finds offered no adequate compensation for the labour involved, the clearing was stopped on the fourth day. Before this, however, we had come upon masonry inserted in what was evidently a natural fissure in the rock face, in such a way as to suggest that it may have served to support a ramp that once led to the shrines and monastic cave-quarters above.

I next turned my attention to the large group of shrines, situated on a terrace about two hundred feet above the right bank of the stream and about three-quarters of a mile from the Toyuk Mazār, which is the most conspicuous among the ruins on the western side of the gorge (Figs. 309, 311).

Shrines on W. side of Toyuk gorge.

[12] Cf. e. g. Grünwedel, *loc. cit.*, p. 324.

The main features of the central portion of this group, which consists of a large cella flanked on either side by a row of vaulted rooms with small rock-cut recesses behind them, have been described by Professor Grünwedel.[14] The mural paintings, already much injured, which he was able to examine in the exposed structures marked by him as A and B, b, had since suffered even worse damage, and the detached temples, C, D, once standing in front of them, had been reduced to almost shapeless masses of debris.[15] On the other hand, a number of smaller ruins occupying the north-eastern end of the main terrace appeared to have remained in much the same state of advanced decay in which I remembered to have seen them on my cursory visit in November, 1907, and these I decided to have cleared.

Clearing of shrines Toy. IV. i, ii.

The first structure opened, i in the sketch-plan Pl. 27, was a small cella, 12 feet square, containing the plinth of a Stūpa, 8½ feet in diameter, which had proved to have been burrowed into. On the floor below were discovered a convolute of Chinese manuscript leaves and fragments of Chinese and Uigur texts. The approach to this cella lay through a small shrine, ii, once vaulted, measuring 16 feet by 7; this showed at its south-western end a recess which had once been occupied by a large image, as indicated by a stepped base in front. Of this image nothing survived but a portion of the lotus pedestal and remains of the feet. But in the layer of sand covering the floor of the room large numbers of small relievo fragments in stucco were recovered, mostly painted or gilded, which must have fallen from a decorative frieze high up on the walls before destruction overtook these.

Fragments of stucco relievos.

In various ways these small fragments recalled the remains of the relievo friezes that had once adorned the walls of the temple cellas and passages Mi. x–xii at the Ming-oi site of Kara-shahr.[16] Here, however, the scale of the figures filling the frieze must have been considerably smaller, in proportion to the reduced size of the shrine. It is impossible from the mass of stucco fragments to form any definite notion as to the scenes represented in the decorative scheme. So much, however, is clear, that human figures, as well as representations of the dead, must have been very numerous among them. Evidence of the former is afforded by the many small heads, Toy. IV. 072–122; ii. 08, 9, 58–60, &c. (Pl. LXXII), of different types and sizes, most of them apparently *appliqué*, and the hands, ii. 034–40, arms, 09, 17; ii. 080–94, and feet, ii. 017–33 (Pl. LXXII), also differing in size. The numerous skulls, 026–39, 52–8, &c. (Pl. LXXII), and the cadavers, 024–5 (Pl. LXXII), suggest work in the Tantric taste. Remains of monsters are represented by fragments like ii. 011–15, 58 (Pl. LXXII). Among the few fragments of animal figures, the bird 07 (Pl. LXXII) may be mentioned. Ornamental details in the shape of jewels, rosettes, bands, &c., from drapery, 010–16, 70, 123–40, &c. (Pl. LXXII), are abundant and often richly coloured. The curling flames 08, 18–23, ii. 041–53 (Pl. LXXII), probably belonged to haloes. Among arms and implements, which dropped to safety at an early stage owing to their detached modelling, we find the Vajra, 0141 (Pl. LXXII), halberd points, 0142–3; ii. 0105, and mallet, 0144 (Pl. LXXII). Architectural fragments, ii. 073, and three votive relievos in clay, ii. 076–8 (Pl. LXXII), showing Buddha or Mañjuśrī, may also be mentioned. Of the frescoes that once adorned the walls, only small pieces, ii. 01–6, executed in rich colours with details in raised gold, have escaped destruction; in one of them, ii. 01, part of Vaiśravaṇa's banner is recognizable.

Passage Toy. IV. iii.

The passage, iii, leading into a small rock-cut shrine northward from which wall paintings appeared to have been removed, was next cleared. It yielded only some Chinese manuscript

[14] See Grünwedel, *Kultstätten*, pp. 317 sqq.; for a plan, cf. also d'Oldenburg, *Russian Turkestan Expedition*, p. 52.

[15] In the sketch-plan Pl. 27, which was prepared by Afrāz-gul while work over official accounts and reports kept me busy at our quarters, the structures shown in Professor Grünwedel's small sketch, Fig. 636, have been marked with the same letters for convenience of reference.

[16] Cf. *Serindia*, iii. pp. 1191 sqq.

fragments, besides a neatly written Uigur leaf and a bone with some characters in the same script. The Stūpa base, 14 feet square, which faced this passage from the east still reached a height, including the lowest portion of the spherical superstructure, of about 5 feet; it was cleared to the floor-level without any deposit being found. It proved to be built of undressed blocks of stone set in a very hard plaster, and showed signs of having been repeatedly burrowed into. The little room, iv, entered from the same passage had obviously served as a monk's living place. It contained a raised recess, about 5½ feet long and under 3 feet wide, which must have been used as a sleeping platform, and a plastered hearth by its side.

Shrine Toy. IV. V.

The large shrine v, situated immediately to the south-west of i, was found, when the debris filling it to a height of 6 or 7 feet above the floor had been cleared, to contain in its centre an image base 9 feet square provided with four niches. The ruin must have suffered thorough damage before its vaulted roof fell in; for the paintings on the lower portions of the walls had been almost completely effaced, while those higher up, mainly representations of Bodhisattva in a row, had also been badly injured. Of the sculptural remains, which were very scanty, the fragments of stucco relievo representations of dragons, Toy. IV. V. 01–2 (Pl. LXXII) and the male head IV. V. 03 (Pl. LXXII), may be mentioned. The manuscript remains discovered were fragments of Chinese texts. Beyond this shrine, to the south-west but on a lower level, there was found a vaulted passage, vi, completely buried with debris, which appears to have served as an approach to the main terrace from a gallery running below it along the face of the cliff. A brick wall built along the axis of the passage may have been a later addition intended to support the vaulting. In the eastern portion of the passage, numerous completely carbonized pieces of Chinese text-rolls were found; these had evidently caught fire within a confined space or after being embedded in debris.

Decorative painting in Toy IV. vii.

In continuation of the flight of chambers marked B by Professor Grünwedel but on a somewhat lower level we came upon the room vii, flanked by two passages only 5 feet wide which had lost their vaulting. The room vii, measuring 26 feet by 12, must have been richly decorated with wall-paintings. But these had for the most part been destroyed by the mud that had been carried into it from the hill-side above by occasional rain and had subsequently become solidified. This mud layer reached to within about a foot and a half of the top of the side walls. Where, however, the vaulting had survived for about one-third of its original length towards the inner end of the room, the fine decorative painting of the ceiling remained intact as well as the frescoed frieze and top portions of the painted panels running round the walls. The removal of these frescoes was successfully carried out by Naik Shamsuddīn. But as they have not yet been set up[16a] I must confine myself here to mentioning that the decoration of the ceiling comprised large plaquettes, about 5 feet square, painted in bright colours. They showed a large lotus with seed-pod surrounded by a circular band of graceful palmettes and outside this by a circlet of round medallions, a motif characteristic of 'Sasanian' style. Western influence was equally marked in the fine frieze of ranking acanthus leaves. In style of design and broad brush-work these plaquettes seemed to resemble those which Professor Grünwedel has illustrated from the main shrine of this temple group and from that on the opposite side of the gorge.[17]

While the room was being cleared to facilitate access to the fresco remains, there were found in a fissure of the wall at the southern corner several large pieces of Chinese text rolls bearing Uigur writing on the reverse. This use of older Chinese manuscript rolls for non-Chinese writings has its exact counterpart among the T'ang texts of the Ch'ien-fo-tung hoard. The Toyuk fragments of Chinese Buddhist texts bear a close resemblance to these in style of script also, as well as in texture and colour of paper. Among some fragments of silk fabrics found in the same room, the piece IV. vii.

[16a Since done at the New Delhi collection.]

17 Cf. Grünwedel, *Kultstätten*, Figs. 637, 645–9.

03. II (Pl. LXXXII), block-printed with a floral pattern of good naturalistic design, deserves to be specially mentioned.

Frs. of wall-paintings from cave-shrine Toy. v.

Brief reference still remains to be made to a small cave-shrine on the right bank of the stream, v (see plan, Pl. 25). It is approached from above over a very steep rock slope at a point about 300 yards below Toy. IV and, owing to the difficulty of access, I was unable to reach it with my injured leg. Attention was called to it by some fresco pieces (Toy. 067–8) brought for sale by a local man. On examination by my assistants, the walls of the passage around the central rock-carved pillar, which still retained an image base in its front recess, were found completely stripped of their paintings. But numerous small broken pieces of painted plaster littered the sand-covered floor, sad evidence of the vandal destruction which had been wrought here, probably for the sake of selling a few carelessly extracted panels.

Cave-shrine Toy. VI.

The same fate had been suffered by the paintings that once decorated the walls of a rock-cut shrine, Toyuk VI, situated above the left bank of the Toyuk stream at a distance of about six hundred yards above the Mazār of Yetti-kalandar and close to where the road leading up the gorge makes its steep drop down to the stream. This shrine, as the sketch-plan in Pl. 28 shows, consisted of an antechapel, a little over 20 feet wide and probably about as long, and a cella, measuring 10 feet by 11 feet 4 inches, approached from the former by a passage 6 feet wide and about 5½ feet deep. The antechapel had its sides faced with brick walls which once carried a vaulted roof; it was found completely ruined and contained but little debris. But the floor of the cella retained a layer of sand about 3 feet deep, which had preserved, not only the lowest portion of a stuccoed image base, but also a considerable number of fine fresco fragments as well as a few remains of stucco relievos. According to statements made by the villagers the plastered surfaces of the walls bearing paintings were torn down a long time ago by men searching the cave for timber. Some support for this came to light in the shape of a rough splinter of wood, about two feet long, evidently reduced from a larger piece of timber and retaining on its smooth surface remains of Uigur writing in two columns. There were also visible in the side walls of the cella shallow groove-like recesses cut into the rock, which evidently had served for the insertion of a wooden framework probably meant to strengthen the plastering; such support may have been all the more needed as the cella walls were not cut vertically from the rock but, as the section in Pl. 28 shows, sloped slightly inwards as they rose.

Frs. of wall-paintings from Toy. VI.

Among the fresco pieces recovered, only the smaller fragments have so far been set up and examined, and these, though in many instances showing interesting details, do not furnish adequate clues to the general character of the decorative scheme. Referring for details to the Descriptive List, I may confine myself here to mentioning Toy. VI. 03, 051 from a representation of the goddess Hārītī with her babes; 02, 015, 032, 035, 068 as showing robes figured with lions, birds, &c.; 06, 066, 073 with figures of suppliants. Besides fragmentary inscriptions in Uigur (029, 033, 071), we have others in Brāhmī script (031, 039, 049, 091). Of special interest is the treatment of 'high lights' observable in 052, 065, where an originally white or other light colour appears to have oxidized to black. A number of the fragments show signs of having suffered from smoke, no doubt at some time when the cave-shrine, conveniently near to the road, was used as a habitation. Within the cella was found also a well-carved stone block, 16 inches square and 7 inches high, bearing on its top the roughly carved representation of an open lotus in high relief. The original purpose served by it is not clear. Small fragments of Chinese manuscript rolls, some with Uigur or Brāhmī writing on the reverse, were also discovered when the cella was cleared.

But the chief object of interest that had survived in this shrine is the painted ceiling of the flat-shaped dome over the cella (Fig. 313). This showed, as far as preserved, two rows of carefully

Painted ceiling of dome in Toy. VI.

drawn and painted small figures, all haloed and seated, grouped amidst exquisitely designed floral tracery around a central medallion in the zenith. Within this medallion, which appears to have suffered in ancient times and to have undergone some rough repair, was represented a seated Bodhisattva-like figure from which rays spread in all directions. This nimbus of radiating shafts of light makes it evident that a representation of the sun or moon divinity was intended. As the total number of small seated figures in the two circular rows surrounding this medallion is twenty-six, and a broken portion of the ceiling towards the entrance leaves room for two more, the conclusion naturally suggests itself that a representation of the twenty-eight Nakṣatras or lunar mansions was intended. The use of this motif for the decoration of temple ceilings is illustrated in a number of shrines which Professor Grünwedel has examined at Turfān and Shōrchuk and described with care.[18] This interpretation is supported by the fact that among the short Brāhmī inscriptions recognizable by the side of some of the figures seated amidst the tracery, the name of *Rohiṇī*, one of the Nakṣatras, could be read with certainty.

Removal of painted panels.

Below the second row of these figures the ceiling in its present state retained towards the north-eastern corner a small portion of a third band containing four more seated figures with halos, while adjoining, on the top of the eastern wall, could be seen the head and bust of a Gandharvī-like figure floating through the air, with the banderoles of the head-dress fluttering behind. The ground of the painted ceiling was formed of a fairly hard plaster, mixed cement-like with small pieces of gravel. Small wooden pegs driven into the rock served to secure this plastering. The removal of the whole painted ceiling was the only means of saving this fine piece of decorative art from risks of further destruction. Owing to the position and the hardness of the plaster, this operation offered considerable practical difficulty, which, however, was successfully overcome by Naik Shamsuddīn's skill and devoted care. Only when the twenty-one panels in which the painted surface of the ceiling was removed shall have been set up once again at New Delhi in their proper position,[18a] will it be possible to render a full account of this remarkably graceful composition.

Antiquities acquired at Toyuk.

Finally mention may be made here of a series of small objects which were acquired at Toyuk by purchase. The statements made as to their provenance from the ruins above the village were probably true in most cases. But there can be little doubt that the two interesting stucco figurines, Toy. 049–50 (Pl. CII), representing mail-clad warriors, and also the three hats in stucco, 051–3 (Pl. CII), were obtained from graves, as our finds in the Astāna cemetery furnished exact counterparts. Apart from these remains, the brass disc Toy. 063 (Pl. XI), showing in relief the animals symbolic of the twelve years' cycle with their Chinese names, may be specially noted. The provenance of the coins purchased at Toyuk is also uncertain. Twelve of them are T'ang issues, six show Sung Nien-haos ranging from A. D. 1008 to 1056, and the remaining fourteen belong to the Manchu period.

[I have as yet no information as regards the fragments of Chinese MSS. found in the course of our excavations at Toyuk. But among the pieces of such materials acquired at Toyuk, M. Maspero has kindly brought to my notice one (Toy. 042) which is of distinct antiquarian interest. It contains the closing portion of the 18th chapter of the Chinese version of the *Prajñāpāramitā*, together with a colophon. In this the copyist states that the MS. was written in the 39th year of the *Yen-ch'ang* regnal period, corresponding to A. D. 599, by order of *Ch'ü Han-ku* 麴韓固, king of Kao-ch'ang. The full Chinese titles of the king are given, and also a rendering of what appears to be his indigenous Turkish designation. The name of this king, according to M. Maspero, fills the gap previously found in the regnal list of the Ch'ü dynasty ruling at Kao-ch'ang previous to the T'ang conquest.]

[18] See Grünwedel, *Idikutschari*, pp. 144 sqq., Pl. XXIV–XXVII; *Kultstätten*, pp. 193, 198 sq., 201.

[18a] Since done.

## Section IV.—LIST OF ANTIQUES EXCAVATED AT, OR ACQUIRED FROM, RUINS AT TOYUK

### OBJECTS EXCAVATED FROM RUINS BELOW EASTERN MAIN GROUP OF SHRINES, TOYUK

**Toy. I. ii. 01. Strip of wood** with traces of painting. Mitred at one end and chamfered at one long edge. Broken at other end. Three pin-holes along square edge with iron pin remaining in one. 9¼" × ⅝" × ⅜".

**Toy. I. ii. 03. a. Fr. of painting on paper.** Three Buddha figures in a row, seated. Outlines may be printed. Faces broad, hair with low Uṣṇīṣa black; nimbus and body halo. First from L.: has dark red robe and green under-robe; nimbus dark pink with lighter edge. Halo dark green with lighter border; Dhyānamudrā. Second: vermilion robe and nimbus light green or grey; halo abraded, Abhayamudrā (?). Third: nimbus as first. Only first figure nearly complete. Second shows L. shoulder and hand, with part of face. Third, only top of hair. Paper tough, smooth, sand-encrusted. 5¼" × 3".

**Toy. I. ii. 03. b. Fr. of print on paper.** Rough outline head of Buddha and part of nimbus of a second to L. Simple scrolls above. Paper buff and torn at all edges. 1¾" × 1¼".

**Toy. I. ii. 03. c. Fr. of silk painting.** Towards one corner a pavilion with red posts and blue and white valence. Floral masses chiefly occupy remaining space. Rather careless work. 5¼" × 4¼".

**Toy. I. ii. 03. d. Fr. of silk painting.** Life-size full-face with Tilaka, half-closed eyes and closely curled hair indicated by outline only; long ear and rainbow-bordered halo; face red. Bad work. Very ragged. 6¾" × 4¼".

**Toy. II. 01. Fr. of fresco,** showing succession of curved bands, prob. part of nimbus. Counting from inner side, first dark grey with blue line, then red, dark buff, black line, dark red. Broken on all sides. Traces of lighter colour at inner edge of first band. 3" × 2¼".

**Toy. II. 02. Woven string shoe;** slipper type, lined and bound with leather. String sole, mostly perished. Uppers woven to shape, in a peculiar stitch giving appearance of rows of knitting. Excellently made; but now in bad condition. Length c. 10".

**Toy. II. 03. Quilted cloth shoe;** slipper type, elegantly shaped, with pointed toe and 'hour-glass' waist. Upper cut in two pieces, seamed at toe, and joined by insertion of third sq. piece at heel. Several layers of buff cotton are used, quilted together by running thread; toe-cap has been covered with silk and orn. with floral embroidery and small rosette made of fine cable braid. Similar braid binds opening of shoe.

Sole much caked with sand, obscuring fashion of making; but apparently composed of several layers of cloth into which string is inwoven in close-set clusters of knots making rough under-surface. Excellently made; now much encrusted with sand and part of side torn away. Length 9¼". Pl. LXVI.

**Toy. II. 04. String sandal;** of same pattern as XT. XXIII. f. 01 (*q. v.*). Part only preserved. Length (incomplete) 6¼".

**Toy. II. i. 01. Fr. of stucco human ear;** fibrous. Traces of pink paint. 3¾" × 1¼".

**Toy. II. i. 03–4. Two stucco relief frs.;** R. human ears, 04 prob. pair of Toy. II. i. 01. Soft clay, orig. covered with paint and gilding. Much of latter remains on 03. Lengths 3" and 3¾".

**Toy. III. 01. Two frs. of woollen pile carpet;** warp of twisted buff yarn; weft of crimson or dark green, untwisted. Green and other colours introduced as pile to form pattern. This was prob. simple geometric or linear, but fr. is too small to show. Worn and sand-encrusted. Gr. fr. 6¼" × 3".

**Toy. III. 02. Fr. of pottery;** flat, orn. with slightly curved bands of comb-drawn wave pattern alternating with plain incised line. Parts of two bands preserved. Light grey. Gr. M. 6".

**Toy. III. 03. Fr. of mouth of pottery vessel;** plain lip, flat on top, slightly everted. Pink-grey; wheel-made. Diam. c. 4".

**Toy. III. 04. Fr. of pottery bowl;** flat base and part of side curving out at wide angle. Grey; wheel-made. Gr. M. 6¼".

**Toy. III. 05. Fr. of pottery vessel,** flat-bottomed, thick, wheel-made; grey. Outside eroded. Gr. M. 3¼".

**Toy. III. 06. Fr. of pottery bowl;** circular base, and about a quarter of side, curving out at wide angle, then rising straight, and finally turning out again to plain lip. Incised annular line at junction of curve and straight. Well shaped. Made on wheel. Grey, clay well washed. Surface polished with metal tool. Diam. of base 2", of rim when complete c. 5".

**Toy. III. 07. Fr. of pottery bowl;** thick, grey, wheel-made, slightly curving in to rim. Diam. of rim when complete c. 4".

**Toy. III. 08. Fr. of base of pottery vessel or stand.** Solid, flat, circular when complete. Upper edge bevelled off, giving wide sloping surface which is orn. with band of incised chevron; the angles of this are again bisected by straight incised lines. Flat surface on top, and lower part of side, orn. with punched rings. Hard blackish-grey body. Chord 7¼", thickness 1¾". Pl. CIII.

**Toy. III. 09. Fr. of wall of pottery vessel;** grey, fine texture, wheel-made. Shows one line of wave pattern made with blunt point, and annular line above and below cut deep with some sharp narrow-pointed instrument. From

upper line, similar lines are also cut upwards at right angles. Gr. M. 3½".

**Toy. III. 010. Fr. of pottery vessel**; grey fine texture, wheel-made. Shows shoulder, with ridge running round above, and neck turning out immediately to everted rim (?). Gr. M. 3".

**Toy. III. 011. Fr. of pottery spout**; dark grey, wheel-made, straight, broken each end. Length 3", external diam. 1⅜".

**Toy. III. 012. Fr. of pottery**; showing band of comb-drawn wave-pattern between two bands of incised lines. Orn. carefully incised. Grey, wheel-made. Gr. M. 3¼". Pl. CIII.

**Toy. III. 013. Pottery handle**; straight, turning in at right angles at top, as if from jar like N. XLIII. 03, Pl. XXV. Surface blackened. H. 4", thickness *c.* ⅝".

**Toy. III. 014. Fr. of large pottery jar**; with (prob.) globular body, small mouth out-turned, and ear-handle rising from shoulder and joining lip at right angles. Grey, wheel-made. H. 6", gr. width 6". Pl. CIII.

**Toy. III. 015–16. Two frs. of pottery saucer**; flat-bottomed, with curved side and plain straight rim. Fine clay, grey, surface blackened, wheel-made. Gr. M. 3¼".

**Toy. III. 017. Fr. of rim of pottery vessel**; short wide neck with everted lip; fine clay, grey with black surface, polished smooth on inside of neck. Wheel-made; well shaped. Chord 4¼". Pl. CIII.

**Toy. III. 018. Fr. of wall of pottery vessel, straight-sided**; with loop-handle attached. Plain straight rim, marked by incised groove ¼" below edge on outside. Grey blackened on surface, and polished prob. with steel tool, the downward strokes of which form irregular streaks on exterior. Roughly made, and worn. H. 4½"; width preserved 3½". Pl. CIII.

**Toy. III. 019. Pottery fr.** Mass of coarse clay, red, burnt hard, and blackened on flat upper surface, which is pitted with rows of deep round holes as if punched by finger. One row of four preserved, and traces of another at each side. 4½" × 2½" × 1½".

**Toy. III. 020. Fr. of iron implement**; heavy ferrule, of which half only preserved, longitudinally. Apparently elliptical in section when complete. Cast in two-piece mould, the joint causing ridge down each side at long axis of ellipse. Broken at one end irregularly; at other rough, just beyond a thickening which ran round pipe. Hole, ¼" diam. through wall for pin to connect to wooden handle. Rusted. Length 2⅝", diam. 2¼", thickness (average) ¼".

**Toy. III. 021. Fr. of pottery** from side of large vessel. Thick, grey, wheel-made, much encrusted with sand. Outside carefully polished and orn. with two bands of comb-drawn wave pattern, and incised annular line. Gr. M. 5¼". Pl. CIII.

**Toy. III. 022. Small wooden 'cork'**; roughly drum-shaped, with two notches cut opposite each other on upper edge, to receive string for securing in mouth of vessel. Traces of red paint round outside. Roughly cut. H. 1⅜", diam. 1¼".

**Toy. III. 023. Fr. of pottery cup or bowl**; grey, fine texture, wheel-made. Side almost straight with plain straight rim. Painted black inside and out with dull glaze, to depth of ½" below rim. Well made. H. 2¼".

**Toy. III. 024–5. Two frs. of pottery**, prob. from same vessel. Grey, wheel-made; 025 polished and in part scraped vertically with metal tool. Gr. M. 2¾", and 4¼". Pl. CIII.

**Toy. III. 026–8. Three frs. of pottery**; grey with blackish surface, wheel-made. 026 part of slightly inturned rim; 028 part of out-sloping rim; 027 flat. Gr. M. 2¼".

**Toy. III. 033. Misc. frs. of silk fabrics** (found with Toy. III. 01). Including pale blue silk damasks; one woven in diaper of concentric lozenges; the other in diaper of elongated hexagons, the angular ends of one row fitting into spaces between angular ends of contiguous rows. In each hexagon an evenly spaced row of three square spots placed anglewise.

Outline of hexagons and solid square dots, in twill; field of hexagons and fine dividing line between hexagons in tabby. As the transverse diagonals of square dots equal width of field of hexagons, the tabby spaces between squares form small hexagons with squares in centre. In some of the rows there are four squares in each long hexagon, the two end ones in twill surrounded by tabby and the other two in tabby on twill field.

Another fr., pale buff, seems to have pattern of rows of elliptical cartouches overlapping in direction of long axes and nearly touching in other direction. Border of cartouche is an angular cloud scroll. In centre, an eight-petalled rosette in outline; in spandrels, four simple palmettes, open ends outward, the two horizontal palmettes longer than the vertical ones, and pointed, to suit shape of spandrel; short ones, round.

Another fr., buff with pink stains, shows part of elongated ellipse of cloud scroll, surrounding very stylistic tree (?). Coarse work and fragmentary. Two other frs., crimson, show parts of roughly drawn cartouche composed of broad outer and narrow inner band; within, pair of confronting standing birds (phoenixes ?) with pair of scrolled pointed leaves in profile below. In spandrel, rosette composed of probably four fleur-de-lis-shaped arms extending from corners of curved-sided lozenge. Both frs. are cut from selvedge part of cloth and the pattern is cut across, above birds, by selvedge.

Other frs., buff with small lozenge spots; pale pink with herring-bone pattern; pale purple with elongated hexagon pattern described above; and plain dark blue and buff. The pale blue forms a band (?) several layers thick, and the other frs. are made into silk flowers, some of which remain sewn to band, others detached. Flowers composed of layers of silk of different colours, cut in whorls of rosette shape of diminishing size, placed one over the

other and sewn through. All silks much worn and faded. Diam. of flowers *c.* 3", gr. length of band 12". Pl. XLIII, LXXXV.

**Toy. III. 034. Frs. of woollen and silk fabrics;** including one fr. of woollen rug, buff, with crimson and brown stripes; one strip of plain grey silk, knotted; one fr. of woollen cord, twisted of purple, red, and buff strands; one fr. of figured silk, satin weave, pattern much perished but shows rosette in blue. Also fr. of figured silk, a double cloth, figuring yarn of flat soft silk, yellow and dark blue; no design on fr. preserved. Silk worn. Gr. M. figured silks 4½" and 3", rug 6" × 4".

**Toy. III. 035. Wooden spoon,** fr. of; found with fabrics. Bowl oblong or elliptical, slightly hollowed, end broken off; handle straight. Roughly cut. Length of fr. 3¾".

**Toy. III. i. 02. Knife in wooden sheath.** Sheath of wood, covered with thin paper lacquered black, with silver (?) ferrule on end and silver (?) binding round opening. Contains knife with straight blade, thick rounded back, edge ground in a curve towards back at point. A deep broad channel runs along each side of blade near back, dying away as it reaches point. Black horn handle; made in two flat pieces which are laid on either side of tang of iron blade and secured to it by four iron rivets passing right through. Over end is small copper plate, through which also passes rivet-like end of tang.

Sheath shaped to contain, besides knife, two slender black wooden chopsticks (broken off), short, but still stuck in holes for their reception. Condition otherwise fair. Iron ring for suspension, attached to silver binding of sheath. Length of whole 9¼", length of sheath 7", diam. *c.* ¾" × ⅝".

**Toy. III. ii. 03. a. Fr. of paper,** with part of six columns of bold Chinese written text. At top of each column a very imperfect impression of seated Buddha put on with a stamp. Paper stiff, discoloured (probably burnt at one end) and torn on three sides. 5¾" × 4¼".

**Toy. III. ii. 03. b. Fr. of paper** cut in form of bilobate petal, shaded blue from base into pink at tip. 2¾" × 1¼".

## OBJECTS EXCAVATED FROM RUINS OF WESTERN MAIN GROUP OF SHRINES, TOYUK

### OBJECTS FROM RUINED SHRINE TOY. IV. ii, iii

**Toy. IV. 07. Stucco relief fr.** of bird flying to R. as *Ser.* iv. Pl. CXXXVI, Mi. xv. 0020. Head, tail, and lower wing lost, and tip of upper wing. Body punched to represent close plumage, and wing moulded to indicate quill feathers and short feathers at top. Painted, and blackened by fire (?). Wooden peg driven through body for attachment to other surface. 2¾" × 2¼". Pl. LXXII.

**Toy. IV. 08. Stucco relief fr.** Branching tongue of flame or spray of foliage as Toy. IV. ii. 041–53. Pl. LXXII. Painted vermilion; broken. 3¼" × 1½".

**Toy. IV. 09. Stucco relief fr.** R. arm (small), bent at elbow. Broken off at shoulder and below elbow. Painted vermilion with two armlets on upper arm, one a plain bead band, the other the same with a long oval plaque of floral orn. rising from it. Orns. moulded separately and *appliqué*; gilded. Stick core as Toy. IV. ii. 080–94. Pl. LXXII. Length 3¾", diam. 1".

**Toy. IV. 010–16. Stucco relief frs.,** representing falling end of drapery, gathered in spiral scroll at top. 010 and 016 fall straight and are painted greenish grey; remainder are wavy, the drapery confined by ornamental band an inch or so below top and thence falling in zigzag curves. Remains of paint, vermilion and green, and of gilding. Length complete *c.* 3½"; some are frs. only. Pl. LXXII.

**Toy. IV. 017. Stucco relief fr.** Part of upper arm as Toy. IV. 09, with gilded armlet and plaque. Painted pink. Length 1½".

**Toy. IV. 018–23. Stucco relief frs.;** short triangular flame or jewel orn. rising from skull. Latter orn. as on bands Toy. IV. 052–8. Front of jewels and teeth of skull 019 gilded and slightly blackened; backs of jewels painted vermilion; backs of skulls left rough for application to other surface. 021–3 have lost skulls. Length with cap 1¼", gr. width ¾". Pl. LXXII.

**Toy. IV. 024–5. Two frs. of small stucco cadavers;** head and bust only. Bodies mere tapering cylinders without arms or shoulders, broken off at waist or higher. Skulls broad and flat, with deep punched holes for eyes, no projection for nose but two holes for nostrils, and no lower jaw or chin but only upper row of teeth. Resemble on miniature scale *Ser.* iv. Pl. CXXXII, Mi. xviii. 007. 024 has two skulls one above other. Remains of dark grey paint. H. (*024*) 1¼", gr. width $\frac{7}{16}$". Pl. LXXII.

**Toy. IV. 026–7. Two stucco relief skulls;** small grotesque, with painted plaques of moulded floral orn. on top. Faces round, of semi-monster type, with holes punched far apart for orbits, small triangular snouts, and wide mouths. 027 in poor condition. Remains of pink paint partially discoloured black on faces; of light red paint and gilding on head-dress of 026, and of gilding on head-dress of 027. H. 1¼", gr. width $\frac{9}{16}$".

**Toy. IV. 028–39. Twelve small stucco relief skulls;** as preceding but without orn., except 029 and 030; orns. of these are broken. All considerably worn; majority show paint discoloured to black. ¾" × $\frac{9}{16}$".

**Toy. IV. 040–51. Twelve stucco relief orns.;** small triangular moulded plaques of conventional scroll orn., from armlets as on Toy. IV. 09, 017, or from heads as Toy. IV. 026–7. All excepting 042, 043, and 048 consist of three tiers of cabochon jewels supported by scrolls and terminating in a point. The remaining three are entirely scroll-work terminating in circular jewel. All gilded, over

red paint, which in some is blackened by discoloration. Gr. h. 1¾", gr. width ⅞".

**Toy. iv. 052–8. Stucco relief frs. of ornamental band.** Pattern, a series of conventional skulls in some of which the teeth are visible. Covered with white or pink wash; 057 and 058 discoloured. Gr. length 2", width ⅞". Pl. LXXII.

**Toy. iv. 059–61. Three frs. of stucco relief band;** 059 ribbed transversely; 060–1 also ribbed transversely but with two plain mouldings along one edge. Gilded and discoloured. Slightly curved. Gr. length 2", gr. width $\frac{7}{16}$".

**Toy. iv. 062–5. Four stucco relief frs.** of orn., resembling recumbent almond with upward curved point, resting in a sheath or calyx. Calyx is in two portions, one extending in long tapering leaf under lower edge of almond and reaching to the tip of curved point; the other a short blunt-pointed leaf supporting lower part of base of almond. Flat; extended below to blunt point, which is pierced with small hole. Sheath gilded; almond painted red, discoloured to blue-black. Main portion also painted behind. 064 incomplete. Length 1¾", gr. width ⅞". Pl. LXXII.

**Toy. iv. 066. Fr. of stucco relief orn.;** un end of four-pronged Vajra (?) rising from lotus. Gilded. ⅞" × ⅞".

**Toy. iv. 067. Stucco relief fr.;** topknot of hair or drapery spreading out in fan fashion. Gilded in front; painted red behind. ½" × ⅜".

**Toy. iv. 068. Stucco relief fr.;** part of armlet band from fig. as on fr. Toy. iv. 09, &c. Gilded. $\frac{13}{16}$" × ½".

**Toy. iv. 069. Stucco relief fr.,** representing skull; as Toy. iv. ii. 056 and 057, but crown in this case flat and painted black. Shallow circular holes for orbits; two incised curves to mark nose; and upper row of teeth without lower jaw. Cf. 024–5, 052–8, Pl. LXXII. ⅞" × 1$\frac{1}{16}$".

**Toy. iv. 070. Stucco relief fr.** Small bunch of drapery hanging from circular clasp or jewel. Remains of red paint and gilding. ⅞" × ⅜".

**Toy. iv. 071. Stucco relief fr.;** flat band twisted round another band and ending in foot-like member with four well-marked fingers or toes. Too fragmentary to be exactly determined. Length 1¼", average width ⅜".

**Toy. iv. 072–122. Fifty-one small stucco relief heads.** Roughly modelled; majority very narrow and long, but 072–5 and 098 short and round, and 0121, 0122 each a pair of short round heads side by side. Faces painted green, blue, red, yellow, or flesh colour with mouths, eyebrows, and eyelashes crudely indicated by black lines, and hair in narrow topknot also black. Eyes always represented as shut.

A few heads have the mouth painted in red; the short round heads have usually moustache and small beard marked in black. Paint worn off faces of many, leaving white wash underneath; application uncertain. Average size: narrow heads $\frac{13}{16}$" × $\frac{7}{16}$"; round heads $\frac{13}{16}$" × ⅝". Pl. LXXII.

**Toy. iv. 0123–8. Six stucco relief jewel orns.;** convex elliptical cabochon jewel in middle, surrounded by smaller long-shaped jewels between raised mouldings. Gilded; 0123–4 discoloured to black. 1¼" × 1".

**Toy. iv. 0129–32. Four stucco relief rosettes;** small, circular, eight-petalled with ring of beads in middle round central bead. Gilded over red paint; 0130 discoloured. Diam. ⅞".

**Toy. iv. 0133. Stucco relief rosettes,** circular, with round convex centre within raised moulding, and six short wide petals. Gilded over light red paint. Diam. ⅞".

**Toy. iv. 0134. Stucco relief jewel orn.** Circular boss within plain moulding. Gilded; blackened. Diam. ⅝".

**Toy. iv. 0135. Stucco relief jewel orn.** Blunt heart-shaped jewel within raised moulding. Gilded; blackened. ⅞" × ⅜".

**Toy. iv. 0136. Fr. of stucco relief jewel orn.** Remains of two circular cabochon jewels side by side, and one pear-shaped above, all within raised mouldings. Signs of another (pear-shaped ?) below, marking lozenge-shaped orn. (?) Gilded, and discoloured to black. Gr. M. 1$\frac{9}{16}$".

**Toy. iv. 0137–40. Four stucco relief frs.** Ends of drapery as Toy. iv. 010–16 but with curved upper ends broken off. Gilded over vermilion (?) paint discoloured to blue-black. Gr. M. 2". Pl. LXXII.

**Toy. iv. 0141. Miniature stucco trident (Vajra ?) head;** made with straight central, and three curved prongs meeting at points and gathered together at base. Gilded over red paint; neatly made; broken off below. L. 1¼", gr. width of prongs where curved out ⅞". Pl. LXXII.

**Toy. iv. 0142–3. Two miniature stucco halberd-heads (?),** in relief. Straight point, supported on either side by curved member; the whole having roughly the appearance of a buckle with long tongue. Gilded over light red paint. L. 1⅛", gr. width ⅝".

**Toy. iv. 0144. Miniature stucco mallet,** with stick handle. Cylindrical head with slight waist, painted red (blackened). Prob. attribute from small fig. L. 2", head diam. ⅜", width $\frac{13}{16}$". Pl. LXXII.

**Toy. iv. 0145. Fr. of arm of stucco fig.,** as Toy. iv. 09, &c. Broken off immediately below turn of elbow, and part of remaining portion broken away from stick core. Painted red, partly discoloured to metallic black, with gilded bracelets on upper arm. Length (together) 2¼".

**Toy. iv. 0146. Fr. of painted stucco,** showing gilded band of bead orn. in relief, and flat surface below painted white and pale green. Gr. M. 1$\frac{5}{16}$".

**Toy. iv. ii. 01. Fr. of fresco,** showing upper part of Dhvaja or victorious banner, a symbol of Kuvera. At top of banner a yellow knob; below, a flounce of green cloth from beneath which issues a dark red flounce. Background dark blue; abraded. 6" × 4".

**Toy. iv. ii. 02. Fr. of fresco,** showing straight gilded

band, with blue ground on one side and pale green on other. 4⅜" × 4".

**Toy. iv. ii. 03. Fr. of fresco,** showing buff object near one edge with detail in raised gold. At opposite edge an object in form of calf and back of knee, deep crimson, with a small patch of same colour near. Background dark blue-grey. Colours mixed with some strong medium giving a quasi lac-like surface. 3" × 2½".

**Toy. iv. ii. 04. Fr. of fresco** showing floral pattern on white ground. Near one edge a patch of green, with dark-red rosette in profile, bordered white and with dark spots on red. Near opposite edge an elongated bud in shaded grey, on grey-black stem. Outlines black. 2¾" × 1½".

**Toy. iv. ii. 05. Fr. of fresco,** probably belonging to 03, but not joining. Same crimson colour suggesting parts of two legs with additional bands. Between bands and 'legs', pale yellow green which also occurs in front of 'legs'. Remainder of background dark blue. 1⅞" × 1⅞".

**Toy. iv. ii. 06. Fr. of fresco,** showing R. hand grasping sword with raised gold handle, on dark-pink ground. At wrist, raised gold bangle. Lower part of hand and wrist missing. To L. of hand a mass of emerald green drapery (?). Hand, flesh colour; sword white, shaded with pale grey. 3⅜" × 2½".

**Toy. iv. ii. 07. Fr. of stucco head;** R. side, showing ear and black hair combed smoothly back over top of head. Face-mask, now lost, was moulded separately; see Toy. iv. ii. 059, 061, Pl. LXXII. Poor condition, sand-encrusted. H. 3".

**Toy. iv. ii. 08–9. Two frs. of stucco head,** resembling preceding, but smaller. Possibly belonging to Toy. iv. ii. 061, Pl. LXXII. 08 shows larger part of back of head, covered with black hair which has been combed smoothly down over it with fine-toothed instrument, and descends on to neck. White band passed round head above ear level; ear not preserved. Fr. of neck painted red, shows in L. bottom corner. 09 shows only part of smoothly combed black hair. H. of *08*, 2⅛"; width 1⅞"; 09 (gr. m.), 1⅞".

**Toy. iv. ii. 010. Fr. of stucco relief lotus petal,** as on Padmāsana Toy. iv. ii. 075, Pl. CIII. Outer end only, showing tip and volute within. Gilded. 3" × 2⅜". Pl. LXXII.

**Toy. iv. ii. 011–15. Five frs. of painted stucco,** prob. all from some monster fig., but 014 doubtful. All are painted in dark blue and red, and show, so far as preserved: *011.* Part of white eyeball, red-rimmed with blue flesh adjacent. Eyeball convex with flesh falling away from it. *012.* Tusk, white, curved, springing from red ridge of jaw, and overlying blue-painted surface. *015.* Claw, small white, curved, projecting from blue-painted toe, red on under-side. Edge of sheath marked by ridge; stick core. *013.* Detached claw, painted pale blue. *014.* Convex fr. with smooth surface painted in bands of red and blue. These last two colours seem to have been mixed with a medium which gives a hard glazed surface. Gr. M. (*012*) 2⅞" × 2⅛"; length of *015*, 3⅛". Pl. LXXII.

**Toy. iv. ii. 016. Fr. of stucco relief woman's fig.;** L. shoulder, breast, and upper arm with trace of black hair behind shoulder. Painted white. Well modelled. 1⅞" × 2⅛". Pl. LXXII.

**Toy. iv. ii. 017–33. Sixteen small stucco feet,** and one pair (024) side by side. Majority broken off in front of heel; a few at ankle, the latter mostly showing gilded ankles. Of varying sizes and painted red, white, or blue. In most cases, upper surface of foot seems to have been moulded separately, and foot then stuck direct on base (e. g. 019–22); in others, foot is moulded with rounded sole which is painted red or blue (e. g. 017–18, 031–2).

Toes marked, but not painted differently from foot except in the pair (024), where feet are painted vermilion and toes white, and 028 and 029, a pair (blue) where toes are also white. The red and blue slightly glazed and hard. Lengths 2⅛" to 1". Pl. LXXII.

**Toy. iv. ii. 034–40. Seven small stucco hands;** five R. and two L. All have fingers curled over towards palm in greater or less degree, from 038 where they are almost straight, to 037 where they are doubled right into palm. In many the tips are broken off. 034 is painted white (glazed) with red palm; 035, 036, 039, red; 037, white under-wash only remains; 038, pale blue with red palm, and 040 fine dark blue (glazed) with gilded bangle and red palm. To last prob. belongs arm among Toy. iv. ii. 080–94. Bangle also on wrist of 037. Gr. length 1⅞". Pl. LXXII.

**Toy. iv. ii. 041–53. Thirteen frs. of stucco relief orn.,** resembling branching flame. Short arms branch off irregularly from forked stems. Outline followed by incised line throughout. Painted red. Gr. M. (*041*) 3⅛" × 3⅛". Pl. LXXII.

**Toy. iv. ii. 054. Fr. of stucco relief orn.,** prob. from head-dress. Formed of series of vertical bands expanding like sticks of fan, bound together at both ends by double band of plain, raised moulding.

Outside, and adjoining band at expanded end, is row of five circular jewels with punched depression in centres. Remains of red and green paint much dimmed. Moulded in fine stucco and applied to background of coarse grass-bound stucco, some of which still sticks. 2" × (gr. width) 2⅛". Pl. LXXII.

**Toy. iv. ii. 055. Stucco relief jewel orn.** In form a cross, the centre stem formed of two sq. jewels on top of each other, and the points of four heart-shaped jewels. Angles of cross filled in with floral orn. The whole gilded, but gilding much dimmed. Cf. Toy. iv. 040, &c. 2⅛" × 1⅞".

**Toy. iv. ii. 056–7. Two stucco relief skulls;** flat and broad across upper part of head; ending below in wide upper row of teeth; no lower jaw or chin. Two large shallow depressions for orbits, and inverted V-shaped depression to mark nose. Hollows in sides of head.

Remains of white wash on 057. Good condition. Cf. Toy. iv. 069. H. 1¾", gr. width 1⅝". Pl. LXXII.

**Toy. iv. ii. 058. Fr. of stucco eyeball,** from large head, prob. monster's. Convex; ball painted red, iris white, and large pupil highly glazed black with gilded spot in centre. Fr. of low ridge of eyelid preserved along one edge. 2" × 1⅜". Pl. LXXII.

**Toy. iv. ii. 059. Fr. of stucco face-mask;** showing lower half of face and R. eye. Surface of nose gone. Traces of white paint in eye. Conventional type with full square cheeks, upcurved mouth, and slightly oblique eye. Burnt hard. Width 2". Pl. LXXII.

**Toy. iv. ii. 060. Stucco relief head;** male, round-faced, with raised eyebrows modelled as ridges, down-dropped eyes, long curved nose, small chin, small mouth upturned, and projecting ears. Hair combed straight up from forehead, apparently into peak, but top broken off. Burnt hard. 1⅞" × 1⅜". Pl. LXXII.

**Toy. iv. ii. 061. Stucco head;** front half; male, prob. of warlike deity. Heavy and severe, with straight strongly marked features set close together in middle of face. Eyes large and well opened, with prominent eyeballs; short strongly aquiline nose; conventional curved mouth; broad full jaw. Eyebrows shown by wide low ridges with arched and jagged edge, rising above eyes. On bridge of nose are two horizontal wrinkles surmounted by a small trefoil palmette, and above this rises third eye, set perpendicularly.

Whole of face painted vermilion; eyes apparently in black and white. Hair black, combed straight off face in low ridge, and passing under gilded band, but behind this broken off. Face was moulded separately and affixed to stucco core, which remains, filling up back. H. 3⅞", gr. width 2¼". Pl. LXXII.

**Toy. iv. ii. 062. Fr. of stucco face-mask,** from head resembling Toy. iv. ii. 061, Pl. LXXII, prob. same mould; shows three eyes, eyebrows, and nose. Painted black, with some red on eyeballs. Cleanly modelled. 1¾" × 1¼".

**Toy. iv. ii. 063. Fr. of stucco relief fig.;** L. breast, shoulder, and upper arm slightly stretched out sideways. Robe painted crimson; no detail left. Sand-encrusted. 2½" × 3¼".

**Toy. iv. ii. 064. Fr. of stucco relief;** triple band, gilded, with fr. of background at side. 1⅝" × 1".

**Toy. iv. ii. 065. Fr. of stucco relief face-mask,** resembling Toy. iv. ii. 061, 062, but slightly smaller. Shows most of L. side of face with nose, mouth, and third eye above nose. Face vermilion; eyes white with black pupil and blue rim to eyeball; edge of eyebrow dark blue; mouth grinning and showing white teeth. H. 1 13/16", width 1¼". Pl. LXXII.

**Toy. iv. ii. 066. Fr. of stucco relief orn.,** gilded. Design too fragmentary to be fully intelligible. Part of curling leaves visible at R. and L. with two trefoil petals, one overlapping the other, between. Gilding still bright. 1⅝" × 1½".

**Toy. iv. ii. 067. Fr. of stucco relief lotus petal,** prob. from Padmāsana. Curves slightly sideways as if at turn of Padmāsana. Gilded over red paint. Incomplete at top. 3" × 2⅜".

**Toy. iv. ii. 068. Fr. of stucco relief drapery;** waved bottom of folds. Remains of red paint (and green in hollows) over white wash. 2" × 1½".

**Toy. iv. ii. 069. Stucco relief fr.;** flat band, slightly curved, with sunk channel along middle, painted green. Remainder painted white. 4½" × 2¼".

**Toy. iv. ii. 070–1. Two frs. of stucco relief band,** joining; part straight leading to circular curve; with channelled surface leaving narrow raised edge each side. Gilded, but much of gilding lost. 3½" and 3" × 1½".

**Toy. iv. ii. 072. Fr. of stucco relief orn.** Two channelled bands, side by side, dividing and curving away from each other at either end. Both ends broken. Gilded, and gilding well preserved. 4" × 2¼".

**Toy. iv. ii. 073. Two frs. of stucco relief architecture.** Larger piece shows two-stepped base with flat buttress or pilaster above, projected ⅜" from attached 'wall'. Width of pilaster 2"; width of 'wall' to R. 1¼" where there is a corner; other side broken away. Stepped base follows recession of wall surface from pilaster. Rise of first step ⅝", tread ¼"; second step ⅜", tread 7/16".

Smaller fr. shows central sq., edged band, with shorter band on lower plane at each side; relation to larger fr. not determined. Both covered with white wash. Gr. fr. 4¾" × 2"; smaller 2" × 1⅝".

**Toy. iv. ii. 074. Stucco relief frs.** A number of small curled flames; some partially embedded on stucco background with outer curve disengaged; some detached but evidently originally in similar position. Prob. from edge of halo; cf. *Anc. Khotan*, ii. Pl. LV, D. II. 55.

Curls separately moulded, with evenly ribbed surface. Traces of red paint over white wash. Frs. consist of one lump of stucco carrying three curls, another carrying two, and three detached curls. Gr. lump 6" × 3"; average length of curls 2¼". Pl. LXXII.

**Toy. iv. ii. 075. Fr. of painted stucco Padmāsana;** in horizontal section, straight; in vertical section, a base about ⅜" high has upper roughly flattened surface from 1½" to 2¼" broad, sloping slightly upwards. From this in a gentle backward curve rises surface about 3" high and receding about 3½" at its upper broken edge.

Upper portion shows green background, on which are three gilded lotus petals in relief, slanting towards L. and hanging downwards. The lobes of each petal are finished off at tips with volutes turning inwards in continuation of inward chamfered edges. Centre portion of petals rises in keeled projection above volutes, and pointed tip issues from between the curves. Much of gilding lost, and

whole of upper edge of petals. Lower part unpainted. Whole fr. 12" × 7¼"; petals c. 4½" × 3½". Pl. CIII.

**Toy. iv. ii. 076. Clay votive relief;** as *Ser.* iv. Pl. CXXXIX, Sassik-bulak. 001–2. A pear-shaped lump of clay with rounded back and flat face, showing impression of Buddha seated in 'shouldered' niche with rounded top. Legs crossed with feet upturned; both hands apparently at breast, but much worn. Standing fig. at each side, with hands apparently in adoration; that on L. showing long Dhōtī draped from hips; perhaps attendant Bodhisattvas.

B. seated on straight Padmāsana with double row of petals, upward and downward pointing; the whole supported on a platform with open legs, between two of which appears grinning monster face, with narrow forehead, small round eyes, and widely distended cheeks and mouth. Second head on R. completely lost.

In sky above upper end of niche, remain small raised figs. too worn for recognition, but perhaps representing small adoring divinities or miniature shrines. Originally very fine work, but detail now almost all worn away. 3" × (gr. width) 2¼".

**Toy. iv. ii. 077. Clay votive relief,** as the preceding, but upper end lost above chin of fig. Shows Buddha seated in niche, as before, between two standing Bodhisattvas (?); but R. hand in Bhūmisparśa-mudrā, L. hand in lap. Upper part of two monster heads with round distended eyes, preserved between supports of platform. Below platform a Brāhmī inscription in relief. Remains of fine beading and other decoration visible on sides of niche. 2¾" × (gr. width) 2¼". Pl. LXXII.

**Toy. iv. ii. 078. Clay inscr. votive relief,** as preceding but much less worn; showing Mañjuśrī (?) seated cross-legged on crouching lion upon circular saddle-cloth, bordered with pearls. Bva. has both hands at breast, high narrow tiara on head, ear-rings, and jewelled chains about waist and hips; but detail of fig. otherwise worn away. Long horseshoe nimbus behind head, and horseshoe halo with beaded edge behind figure. Lion has tufted tail, wears jewelled collar, and turns head up over M.'s R. knee.

By M.'s L. side is three-tiered Stūpa in miniature, with niches containing tiny heads of figs.; above nimbus is tree with rounded masses of foliage. By L. side of nimbus an upright sword and on R. a globular vase. Down each edge of the whole relief run Brāhmī chars. in relief, partially worn. Very fine work. 3" × 2¼".

**Toy. iv. ii. 079. Fr. of stucco L. hand;** part of fingers and palm. Flat. Thumb lost. 3¼" × 2".

**Toy. iv. ii. 080–94. Fifteen frs. of small stucco arms,** to match hands 034–40. Soft clay, with stick cores. Most are from upper arm, some showing turn of elbow; and majority show gilded armlets with or without high plaque orns., as Toy. iv. 040–51. Painted red, blue, or pink; one in fine dark blue evidently belongs to Toy. iv. ii. 040. Gr. length (*080*) 3¾", gr. diam. (*081*) 1¼". Pl. LXXII.

**Toy. iv. ii. 095. Stucco finger (?),** over life-size, broken off below second joint. Seems to be made with outer casing of plaster c. ⅛" thick, painted blue, white, and black, which has scaled off from much of the core. Two incised grooves, marking inside bend of joint, are scored across the stucco core where casing has broken away. Possibly not a finger, but part of snake. Poor condition. Length 4", diam. 1".

**Toy. iv. ii. 096. Stucco relief fr. of snake (?).** One side flat, the other rounded, with semicircular punched marks to represent scales. Traces of dark paint. 3" × 1".

**Toy. iv. ii. 097. Stucco fr.** Rounded bar bent in curve. Remains of black paint. Part of snake (?). Length 3½", diam. ¾".

**Toy. iv. ii. 098. Stucco relief fr.** Rounded, with remains of gilded hoop orn., *appliqué* on white painted surface. 2¾" × 2".

**Toy. iv. ii. 099. Stucco relief fr.** Slightly convex surface, painted white, with tip of gilded crescent (?) orn. in relief in corner. 4" × 3".

**Toy. iv. ii. 0100. Stucco relief fr.** from drapery (?). Painted green. 1½" × 1".

**Toy. iv. ii. 0101. Stucco knob;** remains of bright blue and crimson paint. Polished. Length ⅞", diam. ⅞" × ⅝".

**Toy. iv. ii. 0102. Stucco jewel orn.;** elliptical convex jewel in centre, with inner and outer bead border. Space between borders divided into oblong panels by bars of similar bead orn. One end broken. 1¾" (incomplete) × 1⅜".

**Toy. iv. ii. 0103. Stucco relief fr.;** convex surface, painted white. Indeterminate. 2" × 1½".

**Toy. iv. ii. 0104. Stucco relief fr.** White-painted surface, slightly convex. Indeterminate. 3" × 2¼".

**Toy. iv. ii. 0105. Miniature stucco halberd-head,** as Toy. iv. 0142–3, but made in round. Gilded over red paint. One side detached. ⅞" × ⅝".

**Toy. iv. iii. 01. Fr. of silk,** turned over and hemmed at both long edges. Woven in small chequer. Cinnamon brown. 6½" × 2½".

**Toy. iv. iii. 01. a. Fr. of paper,** with part of block impression showing scroll border, white on black; part of pavement with lowest step of altar and a few streamers of cloth below corner of black-bordered robe. Reverse part of three lines Uigur. 2¼" × 1⅝".

**Toy. iv. iii. 01. b, c. Fr. of paper,** in two pieces, with rough sketch of legs, one foot, part of tail, &c., of large bird. Reverse, several columns of Chinese text. Discoloured and ragged. Gr. fr. (*b*) 5" × 3¾".

**Toy. iv. iii. 02. Fr. of paper** with rough sketch showing part of Padmāsana, R. p. arm (painted white) and a few lines of drapery. Reverse shows blotted large Uigur characters. Paper thick, discoloured and ragged. 6½" × 4½".

OBJECTS FROM RUINED SHRINES TOY. IV. v–vii

**Toy. IV. v. 01. Stucco relief fig. of dragon,** incomplete to R. Dolphin-like body humped in high curve, with outstanding fin along back; upturned head, long and flat, with wide crocodile jaw, broken off just beyond eye but evidently as Toy. IV. v. 02. Double relief band round throat, with conventional petal forms projecting backwards from it. Remains of gilding all over face, and of dark paint on fin and light colour on body. Good work. H. of fr. 6", width across 7". Pl. LXXII.

**Toy. IV. v. 02. Stucco relief head of dragon** in profile to R.; evidently was pair to Toy. IV. v. 01, but all lost behind starting-point of ear. Round eye under projecting eyebrow; long crocodile jaw; heavy rounded snout wrinkled up to show tusks and line of teeth. Incised line follows outline of upper jaw emphasizing curve; deep hole for nostril on upper surface of snout. Traces of dark paint on top of head and muzzle. Good work, well preserved. 2½"×1½". Pl. LXXII.

**Toy. IV. v. 03. Stucco relief (?) head**: male, rather roughly modelled, with flat crown, broad face, projecting ears, and wide jaw. Eyes round, with projecting eyeballs painted black, and black line round inside of socket; straight mouth painted vermilion; large nose with broad nostrils; front half of crown of head represented as bald or shaven, except for occasional tufts of hair; but long hair hanging down sides of face.

Eyebrows, whiskers, moustache, and long beard painted in streaks of black; back half of head, topknot projecting backwards from crown of head, and hollowed back of head below are painted black. Painting of back of head suggests that fig. was in the round, though it is not rightly shaped. H. 2¾", gr. width 2". Pl. LXXII.

**Toy. IV. v. 04–5. Stucco relief frs.**; parts of two hands, prob. a pair. 04 (L.) has lost thumb and tip of first finger; otherwise complete. Hand and thumb were straight with fingers curved over towards palm from second joint. Painted pink, and blackened by fire. Of 05 (R.) only part of back and large joints of fingers are preserved. Pose, size, and blackening by fire, same as in 04. (04) 3"×2½"×c. 1".

**Toy. IV. v. 06–7. Two stucco relief frs.**; 06 representing small R. foot, and 07 pair of feet side by side. As Toy. IV. ii. 019, &c. Both painted dark grey on top and 06 vermilion on sole. Heels of both lost. Length of each 1½", widths 1" and 2".

**Toy. IV. vi. 01. Several frs. of paper,** covered as a diaper with impressions of seated Buddha figure on Padmâsana; hands hidden in robe; paddle-shaped nimbus with crude canopy like drooping wings, from ends of which depend flowers or jewels. Very crude. Paper thin, buff and ragged. Gr. fr. 8"×4".

**Toy. IV. vi. 03. Glass bead.** Amalaka-shaped; pale blue on surface between ribs and at ends in patches, otherwise white, translucent; threaded on loop of fine string. Diam. ⅜". Pl. LXXII.

**Toy. IV. vi. 04. Fr. of copper ornament (?).** Cut from flat piece of copper sheet, for application to object. In shape a curved band, with two rounded leaf-like forms with pointed ends springing from outer side of curve. Hole for rivet in tip of each leaf. One end of band finishes also in point with hole (doubled over), other broken off. Length of whole 2½", width of band ⅜". Pl. LXXII.

**Toy. IV. vii. 02. Fr. of paper** with rough sketch of sixteen-petalled rosette, a Chinese character written on each petal. Within an inner circle is a four-petalled rosette similarly inscribed, and in centre of this a circle with a single character. Outside and reverse incomplete cols. of Chinese. Paper buff, strong and torn away at upper end. 5¾"×6".

**Toy. IV. vii. 03. a–c. Three frs. of silk fabrics.** (*a*) Block-printed with clever and well-drawn pattern of naturalistic peony and other flowers making an 'all-over' scheme. Leaf and stem work has been printed in black, which has remained fast. All other colours faded, leaving remainder of pattern in buff on ground of slightly darker buff with traces of yellow on leaves and flower centres. Width of printing block or 'key' is 5½" vertically; horizontally probably 4¾".

The fr. is in three pieces, two showing selvedge. Pattern runs vertically across width of fabric. All ragged. Gr. fr. in direction of warp 9", of weft 12".

(*b*) Fr. of very soft ochre-yellow damask, perished, with traces of pattern, perhaps lozenge spot. 7"×3½". (*c*) Strip of plain silk, now buff. Length 12½". Pl. LXXXII.

**Toy. IV. vii. 04. Two frs. of lacquered wood,** perhaps from straight-sided vessel. Almost straight in section but with narrow ribs internally and broad ones externally (¼" rib), the hollow between external ribs coinciding with sharp internal ones. Lacquered black on each side. 1¼"×⅜" and 1¼"×⅝".

OBJECTS RECOVERED FROM RUINED CAVE-SHRINE TOY. VI

**Toy. VI. 1. Fr. of fresco,** broken, discoloured and rotten. A seated (?) figure in red lower garment and white stole (or girdle) round waist; head ¾" to R. p.; large earrings, ornamental tiara on head against a nimbus outlined white. R. arm seen to be thrust forcibly down across body towards left, suggesting a possible dancing pose.

Surrounding figure, a bold floral scroll with sprouting curled leaves and bracts. Stem, bracts, and leaves in black or tones of grey and blue, outlined white and red. 1' 2"×1' 2".

**Toy. VI. 01. Fr. of fresco,** showing lotus border similar to 021, but no buff on petals. Pale buff below, emerald green and red above. A black and a grey line at extreme R. 6½"×4¼".

**Toy. vi. 02.** **Fr. of fresco,** showing lower L. p. corner of face of man with scanty straight beard; L. shoulder and breast. Buff strap from side of head runs under chin; cf. 066. Close-fitting tunic of bright red, figured with pairs of rampant lions with uplifted wing-like tail and bushy mane. They uphold in their opposed upraised paws a green globe. One pair only complete, the others cut off by form of garment. At breast a square yellow altar supporting a trumpet-mouthed bowl.

To R. of altar a rampant lion, and head of another appears over L. centre of bowl. Remainder of device broken away. Lions are greenish yellow, striped with black and with wash running along back and down legs. Tail and mane yellow. To R. of figure a red-brown trumpet-mouthed object, incomplete. Background buff, with narrow green patch on extreme edge of fr. All outlines black. 4½" × 5".

**Toy. vi. 03.** **Fr. of fresco,** showing part of R. p. side of cheek, shoulder, and neck of figure (Hāritī ?) with lower part of nude child sitting astride shoulder; R. hand outstretched touching hair at side of face covering ear. Flesh pink outlined red, hair black. Cf. *Ser.* iv. Pl. XIII, F. xii. 004. 3¼" × 2¾".

**Toy. vi. 04.** **Fr. of fresco,** prob. similar to 021, but blackened by smoke or fire. Above lotus petals, part of pavement of uncertain colour, lined with red. From this a R. foot, pale pink, points downwards, across lotus petals. 4" × 3½".

**Toy. vi. 05.** **Fr. of fresco,** showing part of elaborate tiara in pale yellow outlines; red against white nimbus with faint grey ring near outer edge, bordered red, surrounded by heavy black outer border. Above, small segment of another black circle (?); this and the first joined by short straight thick black line, the spandrel enclosed being red. A patch of black at L. edge of fr. To L. of nimbus, buff with elliptical spots in red. 4¼" × 4¼".

**Toy. vi. 06.** **Fr. of fresco,** showing front of body and part of both forearms of figure with hands together in supplication. Head and hands missing. Drapery, roughly indicated by red lines over buff, suggests a three-quarter length coat; edges of skirt in front project forward, giving a concave line to front of figure from breast downwards. Heavy bangles on wrists, all outlined red. Background discoloured to black. 4½" × 3½".

**Toy. vi. 07.** **Fr. of fresco,** showing part of R. p. side of face. Flesh pink. Hair black, surmounted by tiara. Thorn-like edging to hair at forehead. Ear long and pointed slightly at top; ear orns. Eyebrows in two lines red and black. Field of nimbus emerald green, nearly all rubbed off. Border of nimbus dark green (?). 3" × 3".

**Toy. vi. 08.** **Fr. of fresco,** showing to R. two (?) hands together, finger very long and slender, nails long (Chinese). Below hands, and perhaps held by them, a rich tassel with yellow (metal) cap and end. Tassel yellow (?), shaded grey and outlined red. To L. of this a pinkish mass crossed with red lines as a check. Background green (faded). 3" × 4".

**Toy. vi. 09.** **Fr. of fresco,** showing part of forehead, black hair and elaborate yellow tiara, against green nimbus bordered with dark red; black outside. Abraded. 3¼" × 3¼".

**Toy. vi. 010.** **Fr. of fresco,** showing on lower half bust and arms of female figure ¾ to R. p. Necklace and bracelets yellow; robe red; full breasts blue; stole across chest pink. Hands together raised as though in adoration or presenting some object, but all badly abraded. Above R. shoulder part of pink object, perhaps edge of nimbus. Broken away at all sides. 7¾" × 6".

**Toy. vi. 011.** **Fr. of fresco,** showing base of neck, breast and part of hands of fig. Very sketchy and abraded. Round-necked border of garment edged with overhanging lotus petals below which a row of ring-dots.

Hands confused; both grey sketch lines and red final lines visible. Both appear to be R. hands, one partly overlapping the other. The nearer is in the impossible position of showing the palm and yet having the thumb upward touching tip of forefinger, the thumb directed towards L.; the other in Abhayamudrā. 4¼" × 3¾".

**Toy. vi. 012, 018, 019, 028, 037, 038, 042, 044, 047, 054, 077, 078.** **Frs. of fresco.** From background painted with flamboyant scroll-work outlined with red-brown, and tinted with green, blue, pink, &c. On 042 a portion of red drapery. Damaged by fire or damp in places. Gr. fr. (*042*) 7¾" × 4".

**Toy. vi. 013.** **Fr. of fresco,** in two pieces, showing drapery of body of figure with L. hand and wrist. Pose obscure, but perhaps ¾ to R. p. Drapery pinkish buff, in long loose-falling folds. Red to R. and below.

Forearm, of which wrist only remains, clad in quilted material, buff with black cross-lines, and slightly flexed across body. Hand slightly upturned, palm downwards, long delicate fingers. A light-coloured stole in agitated curves descends from upper L. part of fr. White patch with discoloured (black) patch below hand. Abraded and discoloured. 12" × 5½".

**Toy. vi. 014.** **Fr. of fresco,** with one incomplete line of Chinese chars. in black on grey ground. A band of black to R. 4" × 2½".

**Toy. vi. 015, 032, 035.** **Frs. of fresco,** showing horizontal pale buff band, *c.* 2" wide, running through the three frs. divided by vertical double lines of grey into sections of varying length. In each section an inscription in Brāhmī char. roughly written in grey. Above buff band, a pavement (?), yellow on 035 and half of 015, outlined red with inner line border also red; on remaining half of 015 and on 032, dark grey or black.

There appear to be the lower portions of kneeling or standing figures on pavement to extreme R. 035 shows a robe figured with clouds and birds; adjoining, a pink robe with rosettes in blue outline. To L. lower edge of

red robe, with foot in black shoe, behind which (015) dark grey or blue robe without pattern, or perhaps with flying birds. To R. a foot in black shoe.

Below inscribed band, on 015, top of round pointed grey hat (?) with pink lotus to R. On 032, shaven head of monk, blue, with pink forehead and black eyebrows. All below missing. To L. a pink lotus bud. Combined length of the three frs. (which do not join) 1′ 6″. Gr. height (015) 5¾″.

**Toy. vi. 016, 017. Fr. of fresco,** in two pieces showing breast, part of L. arm and hand and part of biceps of R. arm; nude excepting necklace with jewel, armlets and bracelets. L. arm and hand in Abhaya-mudrā, but the two first fingers unusually widely spread. At base of neck a black band-like mass, not understood. Background, visible only between arms and body, green. Flesh pink outlined red. Orns. yellow. Broken away on all sides. Colours well preserved. 8¾″ × 5″.

**Toy. vi. 020. Fr. of fresco,** with pink ground on which a spot pattern. One spot is a trefoil of leaf-shapes in buff, with green markings and a kind of elliptical wing to L. in gold. R. side missing. To lower L. of spot, a circular spot, buff with green markings. To L. a patch of gold and buff, probably part of spot similar to first. Below, a white band with patch of green. 2⅝″ × 1¼″.

**Toy. vi. 021. Fr. of fresco,** showing straight border of curved, blunt lotus petals (Padmāsana ?) between two yellow bands outlined red, with centre red line along each band. Petals white-bordered, buff centres shaded grey, outlined black. Above, two vertical broad bands, dark red to R., grey to L., divided by vertical yellow band with centre red line. To extreme R. a foot pointing straight down and showing sole, pink, outlined red. To L. part of other foot (?) slightly sloping to L.; toes missing. Broken away on all sides. 4″ × 4″.

**Toy. vi. 022. Fr. of stucco,** of rounded form suggesting part of large hand. Gilded all over. Broken away at back and on all sides. 2⅞″ × 2″.

**Toy. vi. 023. Fr. of fresco.** Probably part of lion-figured tunic as in 02. Much defaced. 2¼″ × 1″.

**Toy. vi. 024. Fr. of fresco,** on brick-like fr. of clay, showing painted surfaces on three sides. Front face shows a medallion 2¾″ diam. encircled by yellow band. Within this a device too damaged to make out, but revealing frs. of floral detail in yellow, outlined with fine black lines. Centre mass seems to have been mainly red-brown.

About 1″ to one side, the beginning of a second medallion (?). Ground outside medallion buff or yellow with border at the three intact edges of brick, buff, about ⅜″ wide. The three other surfaces defaced and broken away towards back. Length 5″, breadth 4¼″, gr. thickness 2¼″.

**Toy. vi. 025, 056, 072. Frs. of fresco.** Parts of three figures, all buff with sketchy black contour lines, in pose similar to those on 066. 025 and 056 show the two hands grasping lotus stem. These two are outer angle pieces, and show small part of return surface, painted. The fig. in 056 seems to be deformed, but this may be due to its very abraded condition. Gr. fr. (056) 6¼″ × 3¼″.

**Toy. vi. 026. Fr. of fresco,** showing part of lower leg and foot of figure. Foot outstretched and sole upturned as in 'locked' pose of seated figure. Dark grey drapery over leg to ankle. Background red with small pale pink above (part of other foot ?). 3½″ × 3″.

**Toy. vi. 027, 036, 043, 046, 048, 060, 063, 067, 079. Frs. of fresco,** all abraded, damaged by smoke or damp and unintelligible. Gr. fr. 3½″ × 3″.

**Toy. vi. 029. Fr. of fresco,** with four incomplete lines of well-written Uigur chars. in black on white ground. 4½″ × 2½″.

**Toy. vi. 030. Fr. of fresco,** with one incomplete line of Brāhmī (?) chars. in black on white ground; red band at one edge. 4⅝″ × 2¼″.

**Toy. vi. 031. Fr. of fresco,** with crudely written Brāhmī chars. in black on white ground. 4¼″ × 2″.

**Toy. vi. 033. Fr. of fresco,** with two incomplete lines of Uigur chars. in faded black on white ground. 5″ × 2⅝″.

**Toy. vi. 034. Fr. of fresco,** showing at one edge part of forearm with bangles. At opposite edge pale buff or pink drapery (?). Background a broad band of white, with half crescent in grey at one side; band of grey, outlined black (stole ?), at other. Above (?) a red band with orange yellow border next white, divided by red line; below (?) black. Flesh outlined pink, drapery outlined red and shaded with grey. Damaged by smoke at one edge. 3½″ × 4⅜″.

**Toy. vi. 039. Fr. of fresco,** with two incomplete lines of Brāhmī (?) chars. in black on white ground. Part of red band with black edge above. 2⅞″ × 1⅝″.

**Toy. vi. 040. Fr. of fresco,** showing curved pearl (?)-on-band orn. with two large pearls in centre; surmounted by horizontal yellow ring in perspective, to L. of which long radiating round-ended petals. Black ground. Prob. part of tiara. 3″ × 2″.

**Toy. vi. 041. Fr. of fresco,** showing part of lotus orn., pink with red outlines, and a narrow band dividing it from red ground with black berries or jewels outlined white. 2½″ × 2½″.

**Toy. vi. 045. Fr. of fresco,** showing part of rosette formed of buff disc with central ring and ring border shaded grey; outside this a border of touching, enclosed palmettes, voluted side outwards. Background mottled grey on which traces of outlined detail. 2½″ × 1⅞″.

**Toy. vi. 049. Fr. of fresco,** with mutilated Brāhmī (?) chars. in black on white ground. To one side part of curved white band outlined black. Background black. 3″ × 2½″.

**Toy. vi. 050. Fr. of fresco,** showing part of white rosette jewel behind which chocolate-coloured flame-like tongues. Above and adjoining, a brown mass on which scrolls, also

brown. To one side a bulbous shape in brick red (drapery?); remaining surface bright blue with black lines. Part of head-dress (?). 4¼" × 3½".

**Toy. vi. 051. Fr. of fresco,** showing head of child, shaven except for two short leaf-shaped locks over forehead. L. arm upraised against black hair (?) of head of Hārītī (?). Nimbus of large head, white, bordered red and black, outside. Whole of Hārītī (?) head absent, except black band of hair. Prob. part of 03, *q. v.* 2¼" × 2¾".

**Toy. vi. 052. Fr. of fresco,** showing R. p. side of face, ⅔ life-size, with short-cropped black hair and elongated ear. Mouth and L. side of face missing. Flesh pink. Contour lines red.

Black is curiously introduced, generally where high lights occur, e. g. a broad line between upper and lower contours of upper eyelid; down length of nose; in 'white' of eye. This may be a white or other light colour, oxidized to black. (For other examples of this treatment see 065 and 067.) 4½" × 4".

**Toy. vi. 053. Fr. of fresco,** blackened by smoke and fire; probably part of lion-figured tunic in 02. Near one edge, yellow spreading stem (?) of pedestal or vase, beside which an object resembling wing-like tail of lion. Red visible through discoloration. 3¼" × 2".

**Toy. vi. 055. Fr. of fresco,** showing drapery of three (?) figures. To L. the waist and skirt of tunic similar to that on 02. Waist-band blue, with row of eight (?) blue bands (or bands and pouch) hanging from it, of various lengths; a long narrow white band hanging from below these. To R. reddish buff bands, and to R. again a blue-grey tunic (?) with loops of drapery (sleeves ?) banded with blue and pink above, and with vertical narrow bands hanging from it. To R. of this a rough brownish band, and to R. of that a pink tunic (?) figured with rosettes in blue outline. This end of fr. damaged by smoke. All rather vague, except pairs of lions which are clear. 11½" × 5".

**Toy. vi. 057. Fr. of fresco,** showing face ¾ to R. p., *c.* ⅔ life-size. Treatment as 052. L. p. side beyond L. eye, missing. Tiara and ear orns. Nimbus with white field and broad grey and black surrounding bands. Abraded. 3" × 3¼".

**Toy. vi. 058. Fr. of fresco,** showing bands of white drapery (?) orn. with imbrications outlined red. Also bands of simple lion scrolls; indeterminate. Much defaced. 4¾" × 4¼".

**Toy. vi. 059. Fr. of fresco,** showing red drapery with black contours, banded with yellow, outlined red, one of the bands terminating in a yellow flower-like boss. Defaced and damaged by smoke (?). Probably part of Lokapāla's dress. 6" × 3".

**Toy. vi. 061. Fr. of fresco,** showing elliptical jewel in top of tiara supported on crescent-shaped leaves and with jewels and flower below and to L. Black hair in high backward-thrown mass. Nimbus, white with grey band, and red and grey bands outside. Ground yellow buff. Part of second nimbus to R.; outer band pink-buff within which grey. Damaged at lower edge by smoke. 7" × 2¼".

**Toy. vi. 062. Fr. of fresco,** showing part of edge of nimbus (?). Grey field, white border outlined black. Outside on grey ground, a marbled, or perhaps originally rainbow, effect in black. All colours affected by smoke and probably completely changed. 3¼" × 2¾".

**Toy. vi. 064. Fr. of fresco,** showing portion of L. side of nimbus with green field surrounded by crimson, pale buff and salmon-buff bands, all outlined grey. Against field to extreme R. of fr. a circular buff jewel of tiara. Ground pinkish buff; on this above a volute in black outline, and below a fat claw-like scroll, tinted grey with wrinkles on its inner curve. 6" × 2¾".

**Toy. vi. 065. Fr. of fresco,** showing part of two heads ⅔ life-size. To L., L. eye, brow and part of nose, treatment as 052. Field of nimbus red surrounded by grey band and broad salmon-pink band outlined red. Background emerald green. To R., R. ear and part of cheek; black hair. 6¾" × 3".

**Toy. vi. 066. Fr. of fresco,** broken into several pieces. Shows part of three standing figures in procession, each slightly overlapping the figure behind it. Front figure on L., L. shoulder and arm and part of side, draped in flowing robe. Arm bent at elbow, prob. across front of body; buff.

Second fig., male ¾ to L.; long face with scanty beard, long hair parted over forehead. Round close-fitting cap with slightly elevated top, held on by red chin-strap. Robe blue; hand in front holding stem of lotus curving over R. shoulder.

Third fig. has curious flattened head-dress, above which rises an ellipsoidal object (?). A lotus to R. p. of head probably held by long stem. Greatly damaged by fire and damp. Another lotus to R. 11" × 7¼".

**Toy. vi. 068. Fr. of fresco,** showing to R. centre of figure similar to 066, the hands grasping a lotus stem. All above hands and below elbows missing. To L. a second pair of hands in similar pose against a diaper of red clouds and flying ducks on a blue ground, forming part of figured drapery. All discoloured and badly damaged by damp and fire (?). 7" × 5¼".

**Toy. vi. 069. Fr. of fresco,** showing portion of two standing figures ¾ to R. p. L. hands carry bowl against breast, R. hands raised and held out from elbow grasping some thin object (lotus stem ?). Heads of Chinese shape, ears long; hair with Uṣṇīṣa a solid pale grey mass, like cap. Robe and nimbus of R. figure, vermilion, L. figure damaged by smoke. Bowl, black; background light. Lower part of both figures missing and all L. p. side of figure to R. Faded and discoloured. 6¼" × 6".

**Toy. vi. 070. Fr. of fresco,** showing part of life-size L. hand, with yellow double-band ring on little finger. Back of hand presented. Background of partly discoloured

yellow and white bands with black and red outlines. 3" × 3⅝".

**Toy. vi. 071. Fr. of fresco,** with four incomplete lines of Uigur chars. in black on white ground. 3¼" × 3½".

**Toy. vi. 073. Fr. of fresco,** showing group of five children all ¾ to L.; all white outlined black. Faint traces of pink on cheeks of largest child. Figures in two rows. All appear to be dressed in simple smocks, but each has head shaven in a different fashion. In back row fig. to R. has topknot slightly to L. p. of front of head tied in vertical tuft. Head to L. has small fringe over forehead and thin tail behind. In front row fig. to R. has two leaf-shaped locks curving R. and L. Middle, one love-lock in front curving to L. p. To L., fringe over forehead and long leaf-shaped lock at side.

All have their hands together in attitude of devotion. Lines of drapery on background. Parts of three front heads only remain; bodies missing. Part of face of L. figure at back missing. Good drawing. 4¼" × 2½".

**Toy. vi. 075. Fr. of fresco,** with red ground, showing traces of white drapery (?) shaded grey at one edge, and curved green band at another. 2¼" × 2⅝".

**Toy. vi. 076. Fr. of fresco,** showing on white ground a few very crude Brāhmī (?) chars. in grey; and a band of dark brown at one edge. 2⅜" × 2¼".

**Toy. vi. 080. Fr. of fresco,** showing part of top of head (?) and nimbus. Hair bushy but close to head, parted slightly over centre of forehead; lined black, with small thorn-like points of black round edges next forehead. Face missing. Above centre is part of grey disc (?). Background red. Field of nimbus emerald green, nearly all rubbed off. Border, red surrounded by outer border light blue. For 'thorn' edge to hair, cf. 07. 3½" × 3".

**Toy. vi. 081. Fr. of fresco,** showing curved bands, outer red, next white, then red. Prob. part of nimbus. 2⅜" × 2¼".

**Toy. vi. 083. Stucco relief fr. of hair** of Buddha fig., in two pieces, painted blue. Hair shown in close zigzag ripples ending in swirl. 6" × 3½".

**Toy. vi. 087. Stucco relief head;** male, surface of face almost entirely gone. R. eye survives, slightly oblique, and corner of mouth painted crimson. Flesh painted coarse light red; eyes, eyebrows, and hair lying close to head, black. Large projecting ears. 2⅞" × 2¼".

**Toy. vi. 089. Mass of frs. of paper,** with impressions of stamp of seated Buddha in dull red, the same as Bez. viii. 01. Av. c. 2" × 2".

**Toy. vi. 091. Fr. of fresco,** with traces of Brāhmī chars. and black band above, prob. part of Toy. vi. 016, etc. Abraded. 1½" × 1⅞".

**Toy. vi. 092. Fr. of fresco,** showing curved green band on chocolate background. 3" × 3".

**Toy. vi. 093, 094. Frs. of fresco,** showing a curved band of pink with black outline against a white ground. Size of the two pieces together 5⅜" × 2¼".

**Toy. vi. 095. Fr. of fresco,** showing faintly ornamental details of scrolls and large petal-bordered jewel (?). All in red outline with traces of blue and brown-red. Part of tiara (?). 3" × 3".

**Toy. vi. 096, 0103, 0104. Frs. of fresco,** too abraded to be intelligible. Gr. (096) 4" × 1⅝".

**Toy. vi. 097. Fr. of fresco,** showing part of pink disc with black outline and an inner line parallel to it. A series of straight lines on buff proceed from the edges of disc. Background light blue. 2" × 1½".

**Toy. vi. 098. Fr. of fresco,** showing ornamental details consisting of three kilt-like shapes against black, with broad white edges, black within and outlined red. Band of red cross-hatching on white. Black sleeve-shaped object at one edge with 'cuff' (?) of buff scallops. White background with red linear markings. Much abraded. 5" × 2½".

**Toy. vi. 099. Fr. of fresco,** showing on white ground lower part of black, three-legged cauldron. Small piece of black at lower edge. 5" × 3⅜".

**Toy. vi. 0100. Fr. of fresco,** showing a hand, and a background of a pink, a grey, and a buff band. Very abraded. 2½" × 1⅞".

**Toy. vi. 0101. Fr. of fresco,** showing conventional leaf or leaf-like drapery in black outline, shaded blue and black on dull pink ground. 1⅝" × 1½".

**Toy. vi. 0102. Fr. of fresco,** showing elbow, upper arm, and part of forearm of figure, against a background of faded green with a few black markings. Crimson near one edge. 2⅝" × 2½".

OBJECTS FOUND OR ACQUIRED AT TOYUK

**Toy. 01. Fr. of wall of pottery vessel,** coarse red. (From ruined dwellings in Toyuk gorge, three miles above Mazār.) 2¼" × 3½" × ¼".

**Toy. 02. Stone handle (?).** Soft greyish-white stone; straight, elliptical in section, one end rounded off, the other cut flat and drilled for tang of blade of implement. This end bound with copper band, 1 3/16" deep. Fair condition. 2¼" × 1⅛" × (gr. m.) 13/16".

**Toy. 03. Glass bead;** spherical, opaque glossy black, inlaid with straight and wavy lines of white paste. Good condition. Diam. ⅜".

**Toy. 036. Wooden ring;** round in section, showing remains of paint and gilding. Piece cut out through one side. Diam. external 1⅝", internal ⅞".

**Toy. 037. Stucco hand;** L. fingers curved, thumb extended. Soft clay, mixed with hair, and painted pink over coat of white plaster. Plentiful remains of gilding on back of fingers. Fingers broken off, but intact. Length 1⅝".

**Toy. 038. Glass seal;** oblong block, surmounted by seated lion, Chinese style. Hair on head and back indicated by raised knobs. Cast in two-piece mould. Hole, between body and forelegs, for suspension. Device on base not cut. Base 1 1/16" × 7/16", h. 1¼". Pl. LXXII.

**Toy. 049–50. Two stucco figs.** of warriors, standing straight with feet together and hands joined in front of body. Hole pierced vertically through latter as if for lance or standard. Figs. wear tunics and hood-like helmets of scale-armour; the helmets pointed, with curtain descending on shoulders; the tunics knee-length, with belt at waist, and cut short on upper arm. Arms clad in long sleeves, originally red, now black on one, yellow on other. Feet and legs in long black boots or leggings.

Scale-armour shows throughout oblong scales overlapping upwards, outlined in black on pinkish ground, with grey shading and spots in red, discoloured to black or dark blue, to indicate lacing-holes. Borders maroon.

Faces round, with straight eyes, small aquiline nose, and (050) small black moustache and imperial. Lips on both discoloured to dark blue; faces grey. Stick cores issue beneath feet for sticking in ground. Good condition. H. 6⅜". Cf. Ast. iii. 2. 023, Pl. XCIX. Pl. CII.

**Toy. 051–3. Three stucco hats;** 051 steeple-crowned, as Ast. iii. 2. 017, Pl. XCIX. Crowns of 052–3 rounded, with raised lines over crown and on brim indicating seams or ornamentation. Inside hollowed but left rough and unpainted. Outside of crowns and brims painted black. H. 2", diam. of brims 2¼" to 2⅝". Pl. CII.

**Toy. 054. Wooden fruit or bud;** globular, neatly carved, with four light blue petals (or rind) opening over scarlet centre, the whole growing from whorl of eight sepals. Ball orig. turned, and details afterwards cut out. Outer calyx of green paper pasted on, but only partially preserved. Length 2¼", diam. 1⅛". Pl. LXVI.

**Toy. 055. Iron bell;** like elongated cow-bell. Sq. in section, with suspension loop at top. Clapper apparently hung through hole underneath loop, but now lost. Much rusted. Corners end below in short points. H. 4¼", width 1⅝".

**Toy. 056. a–b. Pair of wooden sandals or clogs;** soles only, roughly cut from flat pieces of wood, with holes at heel and toe for string. Knot of latter remains in toe-hole of *b*. Large hole also pierced by outer edge of *a*. Length 9¾", gr. width 2¼".

**Toy. 057–8. Two wooden sticks,** very roughly trimmed, with hole pierced through either end of each. Leather thong knotted through one hole of 057. Ends are slightly shaved down. Lengths 13½" to 14", thickness *c.* ¼".

**Toy. 059–60. Two wooden scale beams (?),** roughly trimmed, and bark removed. 059 has one notch in middle of 'under' side, and two notches near each end on 'upper' side; 060, in same places, respectively two notches and three. Lengths 12¼" to 13". Pl. LXVI.

**Toy. 061. Stucco relief fig. of Bodhisattva;** standing; head preserved (detached), and body from waist down without feet. Lower part clad in black robe (red, discoloured?) knotted round hips; on head high topknot and rosette-tiara recalling *Ser.* iv. Pl. CXXXIV, Mi. xii. 001.

Hair black, drawn off forehead; black hair on veil falling behind shoulders. Flesh painted pink over white; traces of yellow on tiara. Features straight and well modelled, with straight eyes, short nose and prominent forehead. Soft clay, considerably decayed. H. (lower part) 7", (head) 3¼". Pl. LXXII.

**Toy. 063. Brass disc,** with hole in centre, orn. in relief back and front. Front shows in two concentric rings the twelve animals after which the years are named, and twelve Chin. chars. representing their names. Chars. occupy inner ring; animals, seated or walking behind one another, the outer.

Back shows round outer edge rocks, over which various animals are walking. One a rhinoceros; behind, a crocodile (?); the third not clear. This side much worn, otherwise in good condition. Good work. Diam. 1⅜", of central hole 7/16". Pl. XI.

**Toy. 064. Brass ferrule;** with lightly incised fret pattern round one end. Cracked. Length ⅝", diam. 9/16".

**Toy. 065. Brass bead,** spherical, with loop and ring at top, through which is knotted strip of fine woollen cloth. Diam. ⅝".

**Toy. 067. Fr. of fresco,** discoloured by damp, and rotten. Broken in five pieces. Below, on white (?) ground, head of a Buddha fig. against a white nimbus with red and pink bordered vesica, extending downwards from behind. Above, a panelled treatment bordered in red, outlined with black and white, on a light ground. 1' 2" × 10½".

**Toy. 068. Two frs. of fresco,** badly damaged from damp. The larger piece shows to one side part of forearm of figure wearing three black bangles. Behind arm, part of rich band figured in Sasanian style, with red ground on which circular yellow (?) pateras bordered black with white pearls. In centre of each patera a badly drawn rosette. In triangular spaces between pateras a blue disc surrounded by small white pearls.

Adjoining and parallel a second band with red ground, on which circular discs bordered with blue and white pearls. A pear-shaped blue spot, outlined white, in each spandrel between pateras. The two bands are probably borders of a vesica. The smaller fr. has the same patera and shows a straggling white line, heavily outlined with black, running across the band. Larger fr. 8½" × 5½". Smaller 6¼" × 5¼".

## Section V.—WORK AT THE SITES OF MURTUK

First visit to shrines of Bezeklik.

On December 9th I left Toyuk and proceeded past the oases of Su-bāshi and Sengim north of the outer hill range to the village of Murtuk (Map No. 28. c. 3). I had previously made a reconnaissance from Kara-khōja to the many cave-temples and shrines of Bezeklik, situated about two miles below the southern end of the cultivated area of Murtuk, in the gorge which the stream flowing towards Kara-khōja has here cut through the range. This visit had shown me that those shrines still retained a great portion of their wall-paintings. But it had also afforded unmistakable evidence of the increased damage which the pictorial remains of this, the largest of the Buddhist sites of Turfān, had suffered from vandal hands since my first visit in November 1907. A year before that, Professor Grünwedel had made a two months' stay at the site and devoted all his archaeological care and expert iconographic knowledge to the complete excavation and study of its remains. For the thoroughness with which he has recorded, in his *Altbuddhistische Kultstätten*, the results of his prolonged labours at these ruined shrines, students of the ancient art of Chinese Turkestān will for ever remain deeply indebted.[1] Many of the most interesting specimens of the paintings on the walls of the Bezeklik temples were then removed for safety to the Ethnographic Museum of Berlin, as had been, two years earlier, the remarkably well preserved fresco panels of the shrine which Professor von Lecoq had found filled with debris and had cleared before Professor Grünwedel's return to Turfān.[2]

Arrangements for removing selected frescoes.

With the sad proofs of progressive damage before my eyes, I could feel no doubt that, as local protection was out of the question, careful removal of as much of these mural paintings as circumstances would permit and artistic or iconographic interest would warrant, offered the only means of assuring their security. This was the important task which brought me now to Murtuk, and to which I devoted the greater part of two successive stays of an aggregate length of fifteen days. The safe and careful execution of the task was made far easier than it could possibly have been otherwise by the fact that all the remains of the Bezeklik site had previously been thoroughly investigated and described by Professor Grünwedel, whose familiarity with Buddhist iconography is exceptional. It was fortunate also that once the selection of fresco panels for removal had been decided by myself, their position and relation to the general decorative scheme, &c., carefully noted, and exact instructions given as to the lines along which the portions of larger frescoed surfaces were to be separated, I could safely leave the work of actual removal, strengthening, and safe packing of the fresco pieces to the hands of my two Indian assistants, whom previous training at other sites under my direction had qualified for the purpose.

Method of removal.

It was mainly due to Naik Shamsuddīn's skill and indefatigable industry, with the valiant assistance of Afrāz-gul during the greater part of nearly two months which the task occupied, that the removal and packing of all the selected fresco panels were safely accomplished, in strict accordance with the methods that I had first applied in the case of the frescoes of the Mīrān temples.[3] These technical methods proved equally successful in the case of the Bezeklik frescoes selected for removal. These in the end filled over a hundred large cases, each as heavy as a camel could carry. Considering that the work was carried out at the coldest season of the year and for the greater part without such assistance as my presence could have afforded as regards the supply of needful materials, labour, &c., my capable 'handy man' may well claim special credit for this achievement.

[1] See Grünwedel, *Kultstätten*, pp. 223–301, with Figs. 494–613, among which many carefully executed drawings of specially interesting compositions, figures and decorative details.

[2] See Von Lecoq, *Chotscho*, Pl. 16–38, with explanatory text on the same.

[3] Cf. *Desert Cathay*, i. pp. 463 sqq.

Frescoes set up at New Delhi.

Repacked like the rest of my collection with systematic care at Kāshgar, the contents of all these cases reached their Indian destination without loss or damage. The setting up of the Bezeklik frescoes in the building erected for their accommodation at New Delhi has since 1921 taken up most of the time and labour which Mr. Andrews has been able to devote to the arrangement of the antiquities collected during my third expedition. But at the time of writing the work is still far from being completed.[3a] The reproduction and full description of these wall paintings must therefore be reserved for a separate future publication. Meanwhile I have to content myself with embodying in the present record a plan of the site (Pl. 30) which, based on a regular survey, supplements the sketch furnished by Professor Grünwedel,[4] as well as some photographs illustrating features of its remains (Figs. 314, 315, 318, 319).

Reasons for visit to Urumchi.

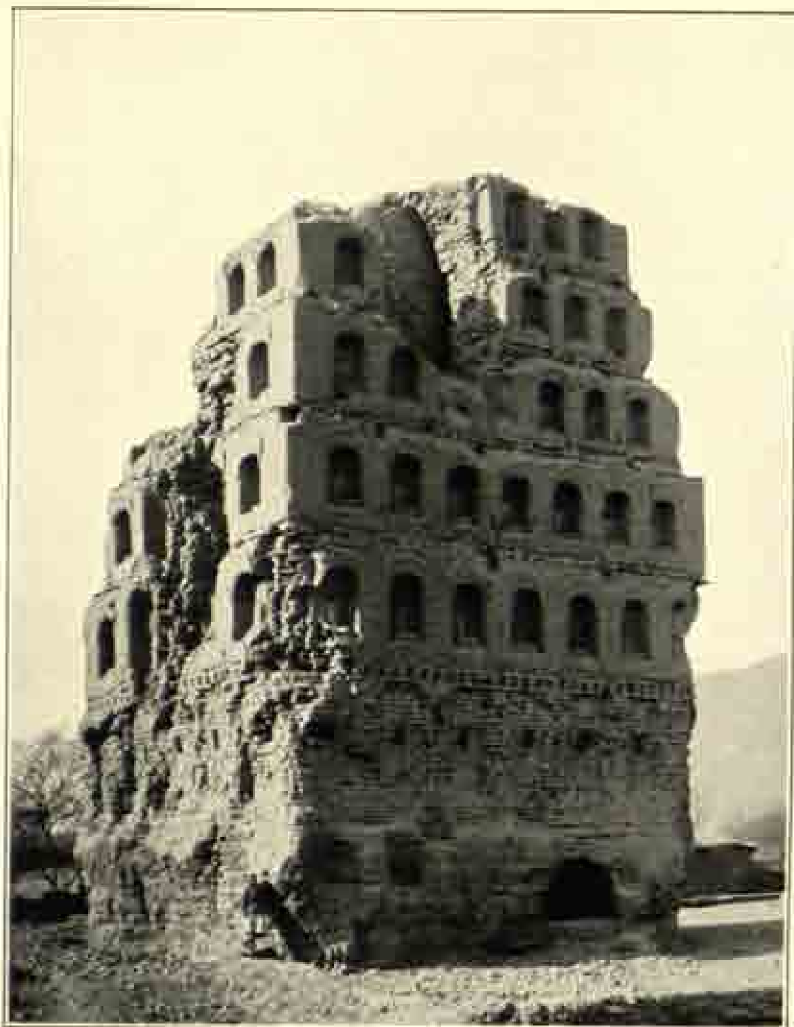
While this work of fresco removal was proceeding, I was obliged to absent myself from Murtuk between December 14, 1914, and January 7, 1915, mainly for the purpose of a visit to Urumchi, the provincial capital. I was drawn there by a great desire to see again P'an Ta-jên, the kind friend and patron of my first two journeys. His administrative merits and his rare and widely recognized reputation for perfect clean-handedness had, after his retirement during the troubles of the 'revolutionary' period, brought him well-deserved promotion to the post of Financial Commissioner of the Province. But even without this personal motive I should have felt obliged to undertake this journey for quasi-diplomatic reasons. Notwithstanding the helpful intercession from Peking secured in the spring by the British Minister, I had reason to apprehend that the spirit prompting the official obstruction, which in January had seriously threatened to bring both my archaeological and geographical work to a standstill, had by no means disappeared from provincial head-quarters. As the sequel showed, this apprehension was only too justified. In order to guard against this risk, or at least to delay the resumption of obstructive tactics, it seemed clearly advisable to endeavour by a personal visit to secure a more favourable attitude of those in power at Urumchi, and in any case to assure myself of that friendly support of P'an Ta-jên which had proved so helpful in the course of my first two journeys. I might, moreover, hope to obtain advice as regards my injured leg from the medical officer attached to the Russian Consulate at Urumchi; though slowly improving, its condition still continued to be a cause of anxiety and impediment.

Climatic conditions on T'ien-shan watershed.

The journey along the high road from Turfān town to Urumchi and back, together with a week's stay at the latter, occupied my time between December 18th and January 3rd. The rapidity of the marches by which the distance of some 115 miles between the two places had to be covered, the difficulty I still experienced in walking, and the wintry season, owing to which the country traversed from near the T'ien-shan watershed northward to Urumchi was snow-covered, all combined to prevent survey work. But even so the journey furnished a variety of interesting observations. It showed me the utter barrenness of the slopes of gravel and decayed rock over which the ascent is made from the Turfān depression to the watershed; the remarkably low elevation of the latter, which on the plateau of Ta-fan-ch'êng scarcely rises above 3,000 feet; and the ease of communication secured by this route between the Turfān basin and Dzungaria. At the Chinese village of Ta-fan-ch'êng close to the watershed irrigation is still required for the fields, and a lively stream coming from the high Bogdo-ula mountains to the north-east serves this purpose. But on the low hills over which Urumchi is approached cultivation depends on rain and snowfall only. This marked change in climatic conditions made its effects strikingly felt when we reached Ta-fan-

[3a] Since done.

[4] For the sake of facilitating reference to Professor Grünwedel's detailed account of the site it has appeared advisable to insert in the plan the numbers given by him to individual shrines (in arabic figures) besides the 'site-marks' (in small roman figures) indicating those from which fresco panels were removed by us.



316. RUINED SHRINE, SIRKIP, SEEN FROM SOUTH-EAST.



317. RUINED SHRINE, SIRKIP, SEEN FROM NORTH-WEST.



318. REMAINS OF MURAL PAINTING AT HEAD OF COLOSSAL IMAGE OF BUDDHA IN NIRVĀNA SHRINE xiii, BEZEKLIK.



319. MURAL PAINTING SHOWING COLOSSAL BUDDHA WITH FIGURES OF ADORING BODHISATTVAS, ETC., SHRINE iii, BEZEKLIK.

ch'êng from the south-east; for there can be no doubt that the violent gales from the north-east for which this plateau is notorious, and one of which obliged us to make a day's halt there under rather trying conditions, are directly due to the 'aspiration' which draws the cold air of Dzungaria through this great gap of the T'ien-shan down into the deep depression of Turfān, where the atmosphere is warmed, even during the short winter, by far more abundant sunshine.

Stay at Urumchi.

A busy Christmas week at Urumchi was made pleasant by the kind hospitality enjoyed under the roof of the Rev. G. W. Hunter, of the China Inland Mission, and by many acts of friendly attention on the part of Mr. G. Tudhope, of the Chinese Postal Service, the Rev. Father Hoogers, of the Belgian Mission, and the officers of the Russian Consulate. It enabled me to enjoy almost daily meetings with my old Mandarin friend P'an Ta-jên (Fig. 298), whose keen interest in my scientific aims and labours remained unaffected either by increased official cares or by advancing years and the changed intellectual outlook consequent on the Chinese revolution. It was, no doubt, largely due to his friendly influence that I met with a very courteous reception from Mr. Yang Tsêng-hsin, the Tu-t'ou or Governor-General of the Province, and Mr. Chang Shao-po, his adviser for Foreign Affairs, though their complete silence with regard to the obstruction attempted in the previous year was not calculated to inspire me with too much confidence as to their future intentions. Fortunately I was able to derive more comfort from the statement of the Russian surgeon that the torn muscles of my leg would recover without leaving any lameness behind; for it removed my anxiety lest physical incapacity should interfere with the work that I was planning to carry out on desert ground to the south and in the Pāmīr region westwards.

On December 30th I started back from Urumchi with the parting good wishes of my kind hosts and after a touching farewell from P'an Ta-jên. Though my old Chinese scholar friend expressed confidence in yet a fourth meeting being granted to us, I felt the parting greatly; for I knew that the time could not be far distant when he would retire to his home in distant Hu-nan, while, as for me, a return to Hsin-chiang must necessarily remain one among the many uncertainties of the future. On January 8th I regained our camp at Murtuk after having made arrangements well ahead at Turfān for the transport of the expected heavy convoy of antiques to Kuchā and thence onwards to Kāshgar. It was a great satisfaction to find, on rejoining my assistants, that they had been able to push on their work unhampered and without intermission, that fifty big cases of frescoes were ready for transport to our Kara-khōja depot, and that many more of selected panels were awaiting final packing.

Survey of Buddhist ruins at Murtuk.

My renewed stay at Murtuk extended to January 17th and was devoted mainly to the closer examination of the Bezeklik shrines and the selection of additional frescoes for removal. During these days I was also able to make a survey of the several small groups of ruined Buddhist shrines situated at the mouths of the little valleys that descend towards the deep-cut 'Yār' of Murtuk from the bare hills to the south-west and south of the village (see site plan, Pl. 29). The more important of these ruins had already been explored and fully described by Professor Grünwedel.[5] But as certain observations concerning their position are of interest both from a geographical point of view and as illustrations of the continuity of local worship, a brief account of them, together with a record of the finds made in ruins not previously explored, may not be out of place. If we start from the hamlet of Ākhūn-mahalla near the southern extremity of the scattered fields of Murtuk and cross the spring-fed stream which flows at the bottom of a deep-cut 'Yār' from two to three hundred yards wide, we reach a bare gravel-covered plateau rising with steep cliffs of clay to a height of about a hundred feet above the right bank of the stream. This plateau, skirting the foot of the rugged and utterly barren hill range, is less than a quarter of a mile wide at this point, but

[5] See Grünwedel, *Kultstätten*, pp. 301–13; also brief notes in d'Oldenburg, *Russian Turkestan Expedition*, pp. 48 sq.

gradually broadens higher up to the north-west. It is furrowed by a succession of deep ravines, in which the rare rain floods from the little valleys of the hill range have cut their way into the Murtuk 'Yār'.

Cultivation at *Tonguluk-bulak* and *Bēsh-kan.*

Where one of these tiny valleys debouches on the plateau just opposite to Ākhūn-mahalla, we find the small spring known as Tonguluk-bulak irrigating about an acre of land immediately below the outfall. It was, no doubt, the presence of this modest supply of water that accounted for the small monastic establishment (M.A. in plan) once existing here. It is marked by two or three little caves, quite bare, on the right side of the valley mouth, and a group of small ruined structures, found completely cleared, on higher ground on the left. Proceeding about five hundred yards to the west along the foot of the range one reaches the second group of ruins, M.B. I, II, variously designated as *Bēsh-kan* or *Bēsh-khān*, also near the mouth of a little valley. Within this valley a spring, which I found dry, used to provide irrigation for a small terrace under cultivation in years gone by but abandoned at the time of my visit. Below this are found six caves of small dimensions, some of which have their walls decorated with remains of interesting paintings.[6]

Clearing of ruin M.B. I.

On the opposite (left) bank of the dry bed rises the ruin of a high tower-like structure, M.B. I (Fig. 305; see sketch-plan, Pl. 28), which in spite of much destruction still showed remains of originally vaulted rooms in three stories. A smaller building adjoined on the east, which also contained rooms, with an open court. The upper portion of the main structure had suffered a great deal through burrowing, and no structural details could be definitely established. But the fragments of stucco ornaments in relief, M.B. I. 02–17 (Pl. IV), found among the debris suggested that a shrine had been comprised in this upper portion of the building. The fragment of a gracefully shaped wooden jar, M.B. I. 019 (Pl. VI), and a small bowl of glazed ware also came to light in this debris. The clearing of the small rooms of the lowest story yielded a number of manuscript and block-print remains in Uigur, including two large and complete documents, besides some in Chinese. The numerous miscellaneous objects found here left no doubt that these lower apartments had served as living quarters, probably for attendants of the shrines. Among them special mention may be made of implements, like the iron razor M.B. I. v. 01 (Pl. VI); the sticks from a loom, iii. 011; the iron awl ix. 01 (Pl. LXVI); of the embroidered silk bag ix. 02, and the figured woollen fabric i. 022. The few fragments of ornamental stucco reliefs and carved wood found in clearing the debris-filled rooms vii and xii had probably dropped there from the shrine destroyed higher up.

A little over half a mile to the north-west of M.B. I there lies at the mouth of a somewhat wider Nullah a third group of ruined shrines, M.C. (Fig. 303). No surface flow of water ordinarily reaches this point now, but the presence of subsoil moisture issuing from the little valley is attested by the presence of a few old stunted trees and by a Kārēz which takes off from here and helps to irrigate some fields farther down in the Yār. It is very probable that when the several shrines now in ruin were still 'in being' water was obtainable near them from a spring or brook. The religious importance attaching to this group of ruins is brought out by the fact that from about two hundred yards eastwards the ground right to the cliffs overlooking the 'Yār' of Murtuk is covered with the graves and domed tombs of the large Muhammadan cemetery formed around the Ziārat of Maulāna Hamīd Khōjam (see the plan, Pl. 29). The site thus consecrated by the resting-place of this holy man was said to form a place of regular pilgrimage for the people of Kara-khōja towards the end of the summer.

The ruins which Professor Grünwedel has explored and fully described[7] comprise a large tower-like structure, M.C. I, resembling M.B. I, on the right bank of the dry bed; a series of small

[6] For the curious composition adorning the cella wall of the central cave M.B. II. i. above the entrance, cf. Grünwedel, *Kultstätten*, pp. 303 sq. For a plan of these caves, see Pl. 28.

[7] See Grünwedel, *Kultstätten*, pp. 309 sqq.

Ruined structures of M.C., Murtuk.

shrines built into the slope of a broad hillock opposite; the curious structure M.C. III on the top of this hillock, and a number of detached cellas found partly on the low ridges overlooking the mouth of the valley and partly on flat ground near M.C. I. Both the last-named ruin and the structure M.C. II, in which important finds of manuscripts and block-prints had been made, had apparently suffered so much from later burrowing, &c., that various peculiar details of construction in M.C. II, which Professor Grünwedel had already duly recognized as a building non-Buddhist in its original character,[8] could no longer be made out with the requisite clearness. The remains of Buddhist paintings that Professor Grünwedel had noted in M.C. II on the walls of the small cella raised on a platform and surrounded by a double court had completely disappeared. In the small detached cella M.C. III (Pl. 29), however, which occupies a conspicuous position on a precipitous spur above M.C. I, the accumulated debris still protected a number of fragments of boldly executed frescoes representing Bodhisattvas, &c., which are described in the List below. Similarly in one of three completely destroyed small shrines, M.C. IV, which could be traced on level ground from 100 to 150 yards to the east of M.C. I, we recovered from the debris numerous fragments of mural paintings, showing figures on a small scale executed with much freedom of design and drawing.

Worship clinging to springs.

Some 300 yards to the west of M.C. II there issues in a narrow tree-lined gully a little bubbling brook which, judging from the great collection of flags and votive rags hung around it, seems to be an object of special veneration for pilgrims to the site. The contrast here presented by the life-giving element to the utter barrenness of the hill chain sufficiently accounts for this local worship. About 400 yards farther along the foot of the hills a fifth spring rises in another little valley, and is used for irrigating a patch of cultivation below. Here, too, two ruined temple cellas, M.D., built on ridges overlooking the valley mouth, bear witness to worship in former times. Bare broken walls is all that remains of them. The whole plateau along the foot of these hills near Murtuk commands a magnificent view of the great snow-crowned range to the north, extending from above Örtang-aghzi to the peaks near the Pa-no-p'a route, and of the vast gravel glacis over which it rises. The springs above mentioned and some others farther to the north-west rise at the foot of these forbiddingly bare outer hills, which from the red colour of their clay and sandstone and their terrific summer heat are appropriately known to the Chinese as the 'Fire Mountains'. This seems a clear indication that the northern slopes of these hills receive here some occasional moisture in consequence of the closer proximity of the snowy T'ien-shan range to the Turfān basin just north of Murtuk.

## ANTIQUES EXCAVATED AT RUINED SHRINES OF MURTUK

### OBJECTS FOUND IN DEBRIS OUTSIDE CAVE-SHRINES viii, xii, BEZEKLIK

**Bez. viii. 01. Five ragged scraps of paper,** with rough block impressions, in dull red, of seated figure on lotus; repeated as a diaper. Av. *c.* 2⅛" × 2⅛".

**Bez. xii. 01. Fr. of inscribed stone** with one complete Chinese character, and two imperfect. [Read by Dr. L. Giles: 爲 *wei*—be . . . 相 (?) *hsiang*—mutual, minister.] Broken on all sides. Well preserved. 2⅝" × 3".

**Bez. xii. 02. Fr. of stucco relief,** much damaged, but showing monster head in profile. Front of forehead and muzzle lost, but prob. fairly perpendicular; eye remains, long and finely upcurved at end with heavy curled brow above, painted white with black pupil and two successive black curves behind. Traces of grinning mouth, making wrinkles at corners; upright pointed ear; head flat on top and mane (?) rising up between ears. Surface much destroyed, but mane, eyebrow, and jowl were painted dark red; remainder gilded. Good modelling and well-finished work; cf. Toy. IV. v. 01, Pl. LXXII. H. 2⅝", width 2¼", thickness *c.* 1¼".

**Bez. xii. 03. Fr. of fresco,** on burnt pottery, apparently corner of tile, showing on deep yellow ground part of lotus flower. Petals painted with rich red heart and outer bands successively of yellow, dark brown, broad red, yellow and dark brown (outline). The lime *intonaco* spread on the surface of tile varies in thickness from ⅛" to a thin film. Good work, discoloured. 5⅛" × 6⅜" × 2".

[8] Cf. *ibid.*, p. 313, with Fig. 624.

OBJECTS EXCAVATED IN UPPER PORTION OF RUIN M.B. I., MURTUK

**M.B. I. 01. Upper part of pottery oinochoe,** with lip and part of handle. Round slightly swelling shoulder, a band of incised festoons between border lines. Remains of perished slip or paste on shoulder, mouth, and handle. H. 3½" × diam. 4". Pl. VI.

**M.B. I. 02–13. Twelve frs. of stucco relief border;** made in straight band *c.* 2¾" wide, with pearl border above and below. *02* and *03* show, between the borders, design of wide repeating trefoil palmettes, attached alternately to upper border and to lower, with scroll-work within and between them. Good condition. Lengths 4½" and 5½". *04* shows similar pattern on larger scale, much defaced. Length 4½". *05–9* show frs. of Chinese cloud pattern as M.B. I. vii. 01, *q. v.* for fuller description. Good condition. Gr. length 3½". *010* is part of pearl border of 03; *011–13*, frs. of pearl border of similar type, but larger scale than any of the rest. Gr. length 2", width 1¼".

All of soft clay mixed with hair; 04 of coarse clay, very fibrous. All painted red, but paint almost gone from 02 and 03. Impression of canvas on back. Mould prob. incised direct without any preliminary pattern in relief. Pl. IV.

**M.B. I. 014. Stucco orn. in relief;** fig. rising from open lotus, both hands at breast holding two lotus flowers which drop over either shoulder. Below lotus two half trefoil leaves turned respectively to R. and L. Prob. enclosed in pear-shaped cartouche. Good design and execution, painted red. Surface non-fibrous, backing finely fibrous over coarser mud and fibre. 4½" × 3¾". Pl. IV.

**M.B. I. 015, 016. Two stucco orns. in relief,** of anthemion shape of technique similar to M.B. I. vii. 02. Pattern, a large lily with voluted side petals, from which issue a pair of diverging volutes and in centre a pointed trefoil. Broken. 3½" × 2¼". Pl. IV.

**M.B. I. 017. Stucco orn. in relief,** of anthemion shape; ornament of simple scroll design, roughly executed and of same technique as preceding. 2½" × 1¾".

**M.B. I. 018. Quilted cloth shoe with string sole.** Uppers are cut in two pieces joining in middle of heel and toe, and are made of several layers of natural-coloured canvas-like material quilted together. Round the sides the quilting is done in plain horizontal lines of stitching, giving a ribbed effect. Over the toe, on either side of the joining seam, it forms a pattern, an enclosed palmette surmounted by a fleur-de-lis, and throwing out volutes to fill the spaces round (cf. M.B. I. 04). The joining seam is well marked and leads to slightly upturned tip.

At its other end the uppers divide, forming a small graceful notch before separating widely to make opening for foot. Edge of opening and notch bound with finely twisted cord. Roughly made canvas pocket sewn on at back of heel. Leather patch on one side. Sole, narrow-waisted, of woven string, studded with knots on under side as *Ser.* ii. p. 784, T. XVIII. iii. 002. Worn through under heel. For shoe of similar make generally, see *Ser.* iv. Pl. L, M. I. ii. 0025. Length 11", gr. width 3½".

**M.B. I. 019. Fr. of turned wooden jar** of graceful shape; wide mouth with narrow upright rim, slightly swelling shoulders to 2" below mouth; body falling inwards in straight line nearly to foot, where it turns under in abrupt curve to ring foot. Pairs of incised lines round shoulder and lower part of body. H. 5½", width of fr. 4". Diam. of mouth prob. *c.* 6". Pl. VI.

**M.B. I. 026. Four-limbed wooden beater** for churn (?). Limbs are of two upward curved pieces (to suit round bottomed vessel), tapering at ends, 'halved' to each other at their centres where they cross, and pierced with cane spindle. Diam. 6¼", length of spindle 6". Pl. VI.

**M.B. I. 027. Small pottery bowl,** glazed apple green inside and darker green shading to blue-green outside. Sides uncurved, sloping inwards to thick projecting base-ring (?) broken away all round. Bottom within ring also glazed and painted with two crosses in dense black, one in thicker lines than the other, and so placed that the eight arms radiate equally from the centre. H. 1 3/16", diam. of mouth 2¾", thickness ⅛" to ¼". Pl. XXVI.

OBJECTS EXCAVATED IN ROOMS OF RUIN M.B. I., MURTUK

**M.B. I. i. 01–17. Seventeen frs. of pottery;** body soft buff, with brilliant turquoise glaze both sides. Inner side ribbed. *01*, from thinner vessel than the others, shows line of black crossing blue on inner side. Gr. fr. (*017*) 3" × 1", thickness 3/16" (*01*, ⅛").

**M.B. I. i. 018. Fr. of wooden comb** with two rows of teeth, as M.B. I. iii. 01. Fine teeth broken off at length of ¼", sand-clogged; one end gone. Length 1 13/16", depth 1¾", depth of coarse teeth ⅞".

**M.B. I. i. 019. Fr. of bronze,** more or less keel-shaped, and bent so as to form a ridge vertically. On either side of ridge, hole for rivet. Cut off sq. at upper end. Length 1 5/16", width 1⅛".

**M.B. I. i. 020. Fr. of iron implement,** shaped like large tuning-fork. Head broken off; rusted. Length 2¾", width 1", thickness ¼" to ⅜", length of fork 1½". Pl. VI.

**M.B. I. i. 021. Shrivelled fruit,** perhaps apricot. Length 1¼".

**M.B. I. i. 022. Fr. of figured woollen fabric,** finely woven. Twill weave. Warp, thin buff, weft somewhat thicker, soft yellow wool. Inwoven with bands of elliptical floral motifs or conventional rosettes, the yarn which forms the pattern being carried loose across back of material and introduced into web only where required. For similar weaves in silk, see *Ser.* ii. p. 952, Ch. 0065. Parts of two bands remain, at interval of 1"; one blue; the other pink, much faded, pattern indistinguishable. *c.* 4" × 2¾".

**M.B. I. i. 023. Fr. of plain silk fabric;** coarse, light green, faded and discoloured. 7½" × 5".

**M.B. I. i. 024. Fr. of black fibre network;** horse-hair (?); open mesh as for sieve, unfinished ends tied in knot. Gr. M. 4".

**M.B. I. i. 025. Fr. of coarse woollen fabric;** goat's hair, dark brown, plain weave. *C.* 6" × 1¼".

**M.B. I. iii. 01. Wooden comb** with two rows of teeth, coarse and fine, on opposite sides. Coarse teeth considerably broken. Length 2⅜", depth of whole 3¼", depth of coarse teeth 1¼", of fine 1$\frac{1}{16}$". Pl. VI.

**M.B. I. iii. 02–10. Nine frs. of glazed stoneware bowl,** with ring base (010), and plain rim (03, 05, 07, 08, 09). Body of fine grey stoneware; thick glaze, inside and out, of soft light blue (celadon), greenish on rim, stopping short of base-ring on outside. Approximately of Sung period. 02 and 04, 03 and 05, 07 and 08 join. Diam. of rim not less than 7" when complete, depth not less than 3", gr. fr. 2$\frac{7}{16}$" × 2$\frac{3}{16}$".

**M.B. I. iii. 011. Frs. of sticks (heddles ?) from loom,** with loops of buff woollen string attached. Five sticks (broken); string of varying thickness, twisted of five or six fine strands, and now tangled in mass. Sticks are carefully and closely bound with cord, from which original loops were formed. The later loops are merely threaded loosely on the sticks. Gr. length of sticks 8⅝".

**M.B. I. iii. 012. Wooden stick,** bent in loop when pliable, and notched to catch on itself; ends projecting. Bark left on in part. Diam. of loop 5", diam. of stick ⅜".

**M.B. I. iii. 013. Fr. of iron implement or orn.** Iron bar, averaging $\frac{3}{16}$" × $\frac{3}{32}$" in section and 6¼" long, expanding at each end into small plate through which is hole. Plates slightly hollowed, spoon-fashion, at opposite sides from each other; both broken from hole, but one finished off sq., the other perhaps lozenge-shaped. At the former end, immediately behind plate, three curving branches of increasing length, their ends curled in spirals away from bar, are welded on to it. Length of longest 2¼". Rusted. Pl. VI.

**M.B. I. iii. 014. Fr. of flat curved band of felt;** ten to twelve layers of paper-like fineness, adhering closely to each other and mixed with thin tough grass fibre. Remains of pale blue paint on face, with fine open-work fabric on top; on back, traces of outer layer painted red, lost except for minute frs. here and there. String sewing by edge. Width of band 3", gr. m. 8½".

**M.B. I. v. 01. Iron folding razor with horn handle,** complete. Handle originally round in section, now much eaten by insects, and worked into slight concave curve; deeply grooved up one side to take blade-edge when shut. End of handle thinned down and bound with iron collar, through which is pin securing blade; collar of course terminating either side of groove, to give blade free play backwards and forwards in latter.

Blade has still free action from right angles to shut, but will not open out flat. Starts narrow, with notch in back at length of ½", to flat against back of collar when opened wide; thereafter nearly straight for another ½" and then expanding suddenly towards back, to twice its orig. width. For shape, cf. razor in hand of monk in painting *Ser.* iv. Pl. LVIII, Ch. lviii. 001; *Th. Buddhas*, Pl. IX.

Blade rusted, and horn of handle much perished. Blade 3" × ½" × $\frac{5}{16}$"; blade 2½" × $\frac{5}{16}$" to ⅞". Pl. VI.

**M.B. I. vii. 01. Fr. of stucco relief border,** as M.B. I. 02, &c. Design: between pearl borders, a Chinese cloud scroll, in lines of approximately even thickness and in bold relief. Character of work suggests that the orig. mould was made by cutting the pattern in intaglio direct. Painted red all over. Fine fibrous clay. Good condition. Length 4⅜", width 3½". Pl. IV.

**M.B. I. vii. 02. Fr. of stucco orn. in relief;** anthemion similar to M.B. I. 015 but pattern flattened and defaced. Painted red. Hard clay, backed with mud and straw. 3¼" × 2½".

**M.B. I. viii. 01. Fr. of stucco** border, similar to M.B. I. vii. 01, Pl. IV. 4½" × 3¼".

**M.B. I. ix. 01. Iron awl with wooden handle.** Head, ⅞" long; $\frac{1}{32}$" thick; $\frac{3}{16}$" wide where it emerges from handle, and thence narrowed down to sharp point. Handle a cylindrical piece of wood, polished with use, and bevelled off at free end. Good condition. Length of whole 3$\frac{5}{16}$", diam. of handle ½". Pl. LXVI.

**M.B. I. ix. 02. Embroidered silk bag;** small, wide, shallow; made of thick crimson satin embroidered at intervals with pear-shaped spots worked in blue, light green, apricot, gamboge, or peach-coloured silk laid 'floating' and outlined with a couched thread which prob. orig. was covered with gold or silver leaf. Lining of pale blue silk; and ends of purple silk handle or tie (lost) sewn to edge. Much worn and frayed. Bag was made of several strips of satin and embroidery worked after joining. 3⅞" × 1⅞".

**M.B. I. xi. 01. Wooden peg,** smoothly turned to long tapering shape, with six deeply incised rings round middle. At thick end it is suddenly bevelled down to half its gr. diam., but is here broken off. Length 4¼", gr. diam. ⅞", least diam. ⅛". Pl. LXVI.

**M.B. I. xi. 02. Miniature wooden half-baluster** (longitudinal half), turned and painted. Three ring mouldings, then ball moulding, then three ring mouldings and ring base. Small rebate at each end. Paint, dark green or black on rings, red on ball. Length 2⅜", width ⅞", gr. relief ⅜". Pl. LXVI.

**M.B. I. xi. 03. Horn knife-handle (?).** Straight, elliptical in section; much perished. Groove along middle on one side as for folding blade; cf. M.B. I. v. 01, Pl. VI. Length 4¼", width ⅞". Pl. LXVI.

**M.B. I. xii. 01. Fr. of stucco relief** detail, painted red, having somewhat the appearance of a bird's claw, closed. At back, impression of scroll ornament resembling M.B. I.

02, to which it has been attached. H. 2¾" × gr. width 2⅛" × gr. projection 1⅞".

**M.B. I. xii. 02. Small turned wooden half-baluster,** similar to M.B. I. xi. 02. Length 2⅝", width ⅞".

**M.B. I. xii. 03. Small turned wooden finial.** Lowest moulding is a cyma, above which a bell shape encircled by a channel. Top member a knob of kite shape in vertical section. Knob and bell painted green, changing to red near cyma, which is also red. A hole drilled upwards on axis. H. ⅞" × gr. diam. ⅜".

**M.B. I. xii. 04. Grass distemper brush,** bound with thick string near tip, and with bark at other end. Length 7½" × diam. ⅜". Pl. VI.

## OBJECTS CLEARED FROM SHRINES OF GROUP M.C., MURTUK

**M.C. III. 01. Fresco fr. showing head,** half life-size, ¾ to R. p. Black hair with tenia and floral tiara in buff and red. Tilaka black with red flames; flesh pink; eyes downcast; nose pointed. Halo shaded grey, bordered red with black and white dividing lines; band of buff and apple green above. Lower part of face missing; all outlines black. Fibrous surface. 7½" × 7½".

**M.C. III. 02. Fresco fr.,** showing R. foot uplifted as in walking exposing sole. Red and buff drapery with green lining round ankle. Pink lotus with green centre below. Background red; all outlines black. Surface fibrous. 5¼" × 6½".

**M.C. III. 03. Fresco fr.,** of ornament; green floral device on brick-red ground. A portion of circular buff band, outlined black, borders pink, suggests a halo. 4½" × 3".

**M.C. III. 04, 06, 07, 09–13, 016, 021. Fresco frs.** from large subject. Above a broad plain emerald green band edged with buff, (021) a diaper of seated Buddha figures of similar type to M.C. IV. 02, &c., but carelessly painted, with leaf scrolls and lotuses with drooping petals filling spaces. 013 shows heads of two Buddha figs. inverted, suggesting that the decoration was on a ceiling or soffit and that at this point the direction of design was reversed. Below green band begins a large nimbus, green bordered with buff, red, and buff. Background red brown, with floral scroll-work in spandrel. All work is bold and inferior in drawing. Surface is slightly concave and fibrous. Surface very soft. Largest fr. 10½" × 9".

**M.C. III. 08. Fresco fr.,** of figure subject. Two hands held in front of figure, the L. placed lightly over the R. in easy pose. Lines of drapery behind. Traces of red, green, buff, and white. Outlines black and heavy. Surface fibrous. 4⅞" × 4⅞".

**M.C. III. 014. Fresco fr.,** of large subject. Bodhisattva head ¾ to R. p. against green nimbus bordered pink and buff; background red with foliate ornament in green and buff. Above, horizontal band of green with angular interlacing pattern in black outline, divided from red ground by buff line.

Head similar to M.C. III. 01, with large disc ornaments suspended to long ears. R. hand raised to side of head, index finger touching eyebrow as though in thought. Grey-black hair dressed high, receding in hornlike projection, with thin tress looped round ear. Bold work. 12½" × 10".

**M.C. III. 015. Fresco fr.,** showing L. p. portion of emerald green nimbus bordered buff, red, and buff; with knotted white, green, and pink hair ribbons, tresses of hair, and gilded ornaments on L. side of head of figure, of which L. shoulder is also present against a grey halo, bordered with red and white (probably orig. colour has disappeared). Beginning of another halo to L., the spandrel between being red brown with coarse floral enrichment. Surface and backing same as other M.C. III. specimens. Bold work. 11" × 10½".

**M.C. III. 017. Fresco fr.,** of group of figures, showing parts of red and white halo borders, drapery, and L. lower angle of cheek of fig. to R. p. on green ground, with small shaven head appearing from behind. Bold work. Surface and backing as in other M.C. III. specimens. 5½" × 4½".

**M.C. III. 018. Stucco fr. of figure,** prob. child, in bordered garment crossing in front, with traces of three successive layers of paint, red-brown, pink and green, also patch of blue under L. arm and traces of gilding. Flesh pink; red lips. At back of head, a tuft of real hair which may have been mixed with the mud. Both arms broken away, but upper part of R. arm now joined. Portion below waist missing. Mud very fibrous and woolly. Surface abraded. 5" × 3½". Pl. CI.

**M.C. IV. 01, 010–12, 020. Fresco frs. of** floral border of long lily-like stems and leaves with red star-shaped flowers roughly painted on white ground. Length joined 22" × width 6".

**M.C. IV. 02, 04, 08, 013, 014, 018, 019. Fresco frs.,** of upright border, of seated Buddha figs. to front. Long Chinese faces, eyes narrow but fully open, hair without detail; under-robe visible across breast, black with red border; outer robe red, hanging in sling-like form from shoulders disclosing upper part of hands resting 'in meditation'. Ears long.

Halo round, emerald green, bordered with broad and narrow lines of red with broad yellow (?) between two outer red lines. Nimbus red, with broad yellow (?) or green border on which broad black line and two thin red ones. Padmāsana straight and red. General ground white. Red lotuses with drooping petals and high green seed-table in spaces between figures. Flesh contours in thin black lines. Rest of work bold. Largest c. 7" sq.

**M.C. IV. 03. Fresco fr.** Showing upper part of Bodhisattva face to front, with half-closed oblique eyes delicately drawn, black festooned hair and Mukuṭa with red jewels. 2⅞" × 2¼".

**M.C. iv. 05–7, 015–17, 019. Fresco frs.** Two Bodhisattvas seated ¾ to R. and L. respectively against architectural background in perspective; square window behind each figure, showing thickness of wall, shaded with grey, and reed curtains hanging at upper part. Wall green with red vertical bands beside windows, frieze of roundels in black outline on green, grey shingles or stone roof above which green coping-stones and pink background spotted red.

Both figures have high coiffure fastened by elaborate Mukuṭa and white bands knotted and draped; long tresses of black hair round shoulders; necklace, massive carcanet with three large circular paterae on breast; armlets, bracelets, and elaborate draperies similar to those of the Ch. Bodhisattvas (cf. *Ser.* iv. Pl. LXVIII, Ch. lvii. 001), including long animated red stoles; Chinese faces, narrow waists. Work good and showing Chinese influence in freedom of design and drawing. Contour lines red and black. 18″ × 14″.

**M.C. iv. 09. Fresco fr.,** of drapery detail in white, red, grey; shaded; of same type as M.C. iv. 05, &c., to which it may belong. Good work. 5″ × 4″.

**M.C. iv. 021. Fresco fr.,** showing upper part of jewel orn. on front of tiara; three circular metal discs, piled one on two, with emerald-green palmette-shaped leaves projecting at sides and top. Knot of white drapery on L. and white streamer flying upwards. Behind, part of circular halo with dark red centre, with grey mass to R., and outer rings of buff and emerald green divided by lines of red. Above, festooned drapery of canopy, dark red with green to L. Good condition. 12″ × 14″.

**M.C. iv. 022. Fresco fr.,** showing red robe of fig., with part of vesica outside. Latter painted in vertical zigzag stripes (slightly curved) of grey, green, and red divided by bands of buff, and bordered by band of red, buff, and shaded grey.

Over both drapery and vesica hang jewelled chains, consisting of metal plaques alternately circular and lozenge-shaped, set with green jewels, and divided from each other by smaller circular jewels of shaded grey. Outlines of jewels in black and dark red. Good condition. 11″ × 16″.

# CHAPTER XIX

## THE ANCIENT CEMETERIES OF ASTĀNA

### Section I.—SEVENTH-CENTURY TOMBS IN GROUP i

Position of ancient burial-grounds.

On January 18th I moved my camp from Murtuk back to our base at Kara-khōja, leaving Naik Shamsuddīn behind to complete the work connected with the removal of frescoes. On the following morning we started exploration at the cemeteries of ancient Kao-ch'ang. I had purposely left this work for the latter part of my stay in the Turfān district, as there was reason to think that this kind of archaeological exploration, when carried out in the close vicinity of a populous oasis containing many Chinese, might very conveniently be utilized at Urumchi as a pretext for reviving obstructive tactics against my operations in general. Earlier reconnaissances had shown me that the tombs around Kosh-gumbaz already noticed, and most of those to be found in small groups on the gravel glacis about a mile to the north-east of the walled enclosure known as 'Bedaulat's town' (Fig. 321), had been recently opened and searched. But apart from these there was a large area covered with ancient cemeteries on the Sai north of the village of Astāna and about two and a half miles from the north-western corner of Idikut-shahri. Here, too, many of the tombs had during the last five years or so been excavated and searched for antiques, both by Mr. Tachibana and local purveyors of antiques, among whom Muḥammad 'Jīsa', the victim of Aḥmad Mullah's *émeute*, was said to have been the most active. But the very persistence of these operations and the great extent of the burial-grounds seemed to justify the hope that opportunity might still be found here for fruitful work on systematic lines.

Distribution of Astāna cemeteries.

As appears from the sketch-plan (Pl. 31), this area stretches for nearly a mile and a half from east to west with a maximum width of about three-quarters of a mile. It lies almost entirely to the north of the canal that carries water from the Kara-khōja stream to the westernmost portion of Astāna cultivation, and passes within 300–400 yards of the village quarters clustering round the conspicuous ruined pile of Taizan. The easternmost extension of this area approaches within three-quarters of a mile of the northern extremity of Kara-khōja. To the west a shallow overflow bed, coming from Sengim-aghiz and bordered by a belt of sandy ground covered with thin scrub, forms the limit beyond which only a few scattered grave-mounds are traceable. The distribution of burial-places over this large expanse is, as the plan shows, very irregular. The rectangular enclosures, each containing a series of tombs more or less aligned, lie closest together in the south-eastern portion. Farther to the north the little mounds marking the position of individual tombs, whether detached or in small groups, are widely scattered without any discernible order.

Enclosures formed by gravel mounds.

A first survey of this area sufficed to show me that the surface indications presented by these cemeteries closely resembled those I had observed in the spring of 1907 at the burial-grounds near the south-western edge of the Tun-huang oasis and on the gravel Sai that I crossed before reaching Nan-hu.[1] Here, too, there were rectangular court-like enclosures marked by low gravel mounds, rising only a few feet above the flat ground. These enclosures invariably showed an entrance on

[1] Cf. *Serindia*, ii. pp. 609 sqq., 619.

one side. This entrance, however, was not indicated by short walls symbolizing a gate as at Tun-huang and Nan-hu. The line of raised gravel was merely broken in the middle of that side, and its ends on either hand carried outwards for a short distance, varying more or less in proportion to the size of the enclosures. These themselves varied greatly in dimension, from a square of 150 yards down to others scarcely more than 10 yards square. The enclosures were always rectangular, those of oblong shape prevailing. No definite proportion was traceable between the size of individual enclosures and the number of tombs within them. Nor was there a fixed bearing for the entrance, though the sides were in most cases roughly orientated.

Tumuli marking position of tomb chambers.

Within each enclosure low mounds of modest size and rarely over 5 to 6 feet in height served to mark the position of the tomb chamber, which was cut in the hard clay soil beneath them. These tumuli were constructed of gravel with intervening layers of thorny scrub, and the larger ones were often decked with rough stones. They were generally much dilapidated, but appeared usually to have had the shape of a truncated pyramid resting on a square base. The orientation of individual tumuli seemed always to correspond to that of the enclosures, where these existed. But their grouping within these was by no means uniformly regular. Subsequent observations showed that the larger mounds, up to 30 feet square, were generally found to lie over tombs whose chambers were more elaborately arranged. From the middle of that side of the mound which faced the front of the enclosure as marked by the entrance, there always extended originally a low handle-like mound of gravel, sometimes bordered with rough stones, running at right angles towards that side. This mound marked the position of the deep-cut narrow trench which formed the approach to the sepulchral chamber. As almost all the trenches had been dug up and the tombs searched and plundered at one time or another, little remained of these ' handles ' beyond that portion lying close to the tumulus where the trench ended in a short tunnel-like passage giving access to the tomb chamber or its anteroom. With the surface remains of the Astāna cemetery area, I may here also mention a large tower-like ruin, badly decayed and much burrowed into by ' treasure-seekers '. It rises not far from the above-mentioned canal and near the middle of the area where tombs are few and scattered. It is built partly of stamped clay and partly of rough lumps of clay, and contains some small half-underground rooms which, of course, had been cleared out long ago.

Earlier plunderings of tombs.

Before I proceed to describe the results of the work which kept us busy for a fortnight at this great cemetery of Astāna, it will be convenient to record briefly what I ascertained at the outset, from local information and ocular evidence, as to the ravages that its tombs had undergone during comparatively recent periods. It was easy to realize from the condition in which the passages of approach to the tombs were found that most, if not all, of the latter had at one time or another been opened and searched, whether for valuables or in later years for antiques. Instead of the lines of embanked gravel and stones that covered these narrow trenches after they had been originally filled in on completion of the burials in the tomb chambers, the surface showed furrow-like depressions, sometimes just perceptible to the eye, sometimes well marked. They contained that fine drift-sand which the strong north-westerly winds prevailing through spring and summer sweep in masses across the Turfān basin and which quickly accumulates in any excavation or similarly sheltered place. Where the walls of the passages cut into the hard ground were still partly exposed, the excavation had evidently been of very recent date. Local opinion in Astāna and Kara-khōja was uniformly to the effect that all the tombs, or at least their vast majority, had been plundered by Tungans during the times of the last great Muhammadan rising and Yāqūb Bēg's régime, mainly in search of valuables deposited with the dead. But, as our investigations soon showed, the wood of the solid old coffins must also have been prized as a very useful by-product. It apparently compensated for the labour involved in these operations, even where these yielded no profit in the

way of precious metals, &c.; for trees are very scarce in the oases, cattle-dung also, and fuel accordingly at a high price.

Recent spoliation by local villagers.

The desire of the villagers to ascribe the wholesale opening of these tombs to the truculent Tungans was probably prompted by the knowledge that, until the recent revolution with its subversive consequences, the local Mandarins would have effectively checked any open disturbance of the dead, if only from regard for the feelings of the numerous Chinese traders and cultivators settled in the Turfān oases. Yet there was reason to believe that the gentle native 'Chantos' of the neighbouring villages had not been altogether averse to taking their share in the spoliation of these tombs, whether openly during the troublesome times of the Muhammadan rebellion or clandestinely later on, when, to their great relief, peace and order had been re-established under Chinese rule. Conclusive testimony on this point was supplied by 'Mashik',[2] the local tomb expert, whom the obliging Darōgha of Astāna had brought me to serve as guide, along with our first contingent of diggers. I was only too glad to employ this intelligent fellow as their foreman; for through long practice in this *macabre* line of business he not only possessed an uncanny familiarity with all that appertained to these abodes of the dead, their personal outfit, &c., but also a remarkably accurate knowledge as to which tombs had been searched recently for antiques and which had remained untouched but for the unsophisticated exploitation attributed to the Tungans. Considering the very large number of tombs and the importance of economizing time, this knowledge was of obvious value to us and fully worth the rewards which secured that it should be honestly applied.

Mashik, an expert searcher of tombs.

Mashik stated that he had been initiated into this business by his father, who had died at a great age some twenty years before. Others remembered hearing the old man talk of his tomb experiences during Tungan times and later on in the days when the digging had to be done more or less secretly at night. Mashik himself claimed that he had opened more than a hundred tombs during the last four or five years, when the Chinese administration had ceased to take serious notice of such proceedings. During that time, certain local Mandarins with modern notions and antiquarian tastes had directly encouraged them, in order to secure manuscripts and other antiquities for their own collections of curios. All the more significant was Mashik's emphatic assertion from the first that among all the tombs that he had examined during these years he had never found a single one of which the brick wall originally blocking the entrance had not been partly broken through by some previous searchers. This disappointing experience might well have reduced his exploratory zeal had not a curious discovery of his own, aided by a peculiar freedom from all superstitious scruples where the remains of 'dead Kāfirs' were concerned, enabled honest Mashik to look for precious metals in places where even greedy Tungans had failed to search for them.

Group of tombs, Ast. i.

Our work at the Astāna cemeteries was begun on January 19th with the examination of tombs which, without showing an enclosure of embanked gravel, might yet, by their arrangement in more or less parallel rows, be recognized as a separate group marking the extreme north-eastern extremity of the area (see Pl. 31). Among this group, Ast. i, the arrangement of which is shown in Pl. 32, a considerable number of tombs had manifestly been searched in recent years. But in the middle row the majority appeared to have escaped. The six tombs here successively opened by us were all, as the sketches in Pl. 32 show, approached by a trench, about 3 or 4 feet wide on the average at the bottom, leading down from the surface of the ground to a depth which varied, as practically in all other Astāna tombs, from 12 to 16 feet. At its end the trench gave access to a narrow rock-cut entrance, about 3 feet wide and only 3 to 4 feet high; from this the

[2] I regret not to have kept a note of the full Muhammadan form of the name from which this current appellation of our worthy Astāna cicerone was abbreviated after a fashion customary at Turfān.

tomb chamber was gained by dropping down to the floor a foot or two lower. This entrance had been originally walled up with rough brickwork, through which the first plunderers had broken a hole sufficiently large for a man to crawl through. The tomb chambers in Ast. i. 1–6 were either square or oblong, the largest measuring 11 feet square and the smallest 9½ feet by 6. The height within varied from 5 to 6 feet; the walls were, as in most of the tombs elsewhere, left unplastered and showed the bare clay seamed by layers of fine gravel.

Clearing of tomb Ast. i. 1.

In clearing the approach trench to Ast. i. 1 a number of small silk pieces were first discovered, including the fragment of a fine figured silk in twill weave, Ast. i. 1. 08, 011 (Pl. LXXVIII, LXXXIII), and also two fragments of a Chinese text or document on paper mounted on silk damask. These may have been dragged out of the tomb when the boards of coffins were removed. The interior near the entrance was found filled with sand to a height of 2 or 3 feet, clear evidence that the tomb had remained open for some time before the accumulation of drift-sand blocked the opening broken through the wall. This may also account for the much-decayed condition of the two corpses found lying side by side on a simple mat near the western wall. The heads of both had been detached, evidently when the bodies had been thrown out of their coffins. Only shreds remained of the shrouds, which consisted of plain cotton fabrics with a covering of thin discoloured silk. But on the head of one of the bodies a circular piece cut from a figured silk and surrounded by a frill of plain silk pleated, Ast. i. 1. 01 (Pl. LXXX), survived in a very perished and brittle condition.

Finds in tomb Ast. i. 1.

It was the first specimen of those ornamented face-covers found at this cemetery which furnished a very interesting series of polychrome figured silks, almost all distinctly 'Sasanian' in their style of decorative design. The patterns of this and other figured silks here recovered, whether of Western or Chinese origin, will be conveniently discussed together at a later stage, after the tombs explored and the objects found in them have been described. Other pieces of striped coloured silk and damask, i. 1. 09–10 (Pl. LXXXIV), were found clinging to the wall in the north-western and south-eastern corners of the chamber. Five pottery vessels of different shapes and sizes, including the goblets i. 1. 05–6 (Pl. XC), the large jar i. 1. 03, and the small bowl i. 1. 07, were found lying along the southern wall towards which the heads of the dead had been turned. They, no doubt, were intended to hold food placed in the tomb for the use of the dead. Their bodies are painted grey or black with decorative bands, consisting mainly of large white discs and of petals in red. Pottery with a similar type of decoration prevails throughout the Astāna tombs. The fact that the painting was done in tempera and therefore perishable proves that this pottery was specially decorated for sepulchral purposes. Near the entrance was recovered the small wooden duck i. 1. 012 (Pl. CIV), of graceful shape, excellently carved in the round and its colours well preserved. Like two similar carved ducks in other tombs it may have been deposited with the dead as a symbol of felicity.

Objects recovered from Ast. i. 2.

In the tomb Ast. i. 2 next examined, the two bodies that it contained were found in a badly decayed and damaged condition. The deposits still traceable comprised some rough pottery bowls decorated as in i. 1, of which i. 2. 04 (Pl. XC) is a specimen; remains of food still adhere to its bottom; also the wooden food bowl i. 2. 05 (Pl. XCI); all of these had been placed along the southern wall towards which the heads of the dead were turned. There, too, were found the wooden duck i. 2. 06 (Pl. CIV), with a realistically carved head, and fragments of what appear to be two distinct Chinese documents. A mass of fragments of fine blue silk, all painted, has owing to their very fragile condition proved very difficult to open out; they appear to be the remains of a hanging, similar to that recovered in Ast. ix. 2, which had fallen from the back wall and thus got broken up.

The adjoining tomb, Ast. i. 3, yielded several interesting discoveries, even though the two bodies it contained were badly decayed and had evidently also suffered from rough treatment at

'Spectacles' of dead in Ast. i. 3.

the hands of plunderers. They lay with the heads pointing to the south, one of the bodies being small and probably that of a woman. The fabrics which clothed them, plain cotton and snuff-coloured silk, had rotted away into shreds. But the mask-like covers of silk placed over the faces had survived better and revealed, when removed, interesting details in connexion with the last toilette of the dead. In the case of the larger body, *a*, obviously male, which lay eastward of the other and nearer to the entrance, the face-cover contained in the middle a piece of figured silk showing a very fine design of distinctly 'Sasanian' style, Ast. i. 3a. 01 (Pl. LXXIX). Of the frill, in plain blue silk, i. 3. a. 02, only small fragments were recovered. Below this cover was a pair of 'spectacles', placed over the eyes, i. 3. a. 04, consisting of a thin plate of silver, formed into two lotus petal-shaped pieces which are joined end to end. The slightly embossed centre of each is punched with a number of small holes and the flattened edges drilled for sewing on to the silk with which the surfaces were covered. The exact object intended to be served by these 'spectacles', of which further examples were recovered on other bodies, still remains to be ascertained.

Byzantine gold coin in mouth of dead.

But the most curious and instructive discovery here made was the following. Mashik, our special cemetery assistant, whom long practice in searching the dead had relieved of all scruples, by breaking the jawbones of the skull recovered from the mouth cavity a thin gold coin which I was able at once to recognize as Byzantine (Pl. CXX). It has since been identified by Mr. R. B. Whitehead as an approximately contemporaneous imitation of a gold coin of the Emperor Justinian I (A. D. 527–65).[3] This at once supplied a *terminus a quo* for this particular group of tombs. The chronological evidence was confirmed by finds in two more tombs of the same group, Ast. i. 5 and i. 6, of thin gold pieces (Pl. CXX), similarly showing the type of Justinian I's gold coinage but struck only on the obverse. Mashik claimed the distinction of having been the first to learn by experience to look for coins of gold or silver placed in the mouths of the dead, though his search was but rarely rewarded. That earlier pillagers had not made the same discovery was proved by the fact that in none of the tombs which we explored, and which Mashik stated that he had not himself touched, had the skulls suffered the rude operation by which he was wont to ascertain whether they contained a coin.

Custom of providing obolus for dead.

The fact that out of the four coins actually found by us in the mouths of Astāna corpses three are Byzantine gold pieces or imitations of such pieces (Ast. i. 3. 023; 5. 08; 6. 03) and one a Sasanian silver coin (Ast. v. 2. 02) might naturally predispose us to connect this practice with the ancient Greek custom of placing a coin between the lips of the dead as the fare due to Charon, the ferryman of Hades. But the reference with which M. Chavannes kindly supplied me in 1916 to a Buddhist story in the Chinese Tripiṭaka suggests that the custom was not unknown in the Far East also.[4] It must further be borne in mind that as China had never had a gold or silver coinage, those who at Turfān wished to provide their dead with an adequate obolus for the journey to the world beyond would necessarily have to use a coin of Western origin for their pious purpose, if they wished it to be of precious metal. I must leave it to others, with more ample literary resources than I can command at present, to trace such other links as may exist between the practice here discovered and the burial customs of the East or West. It will be sufficient here to remark that all the three gold coins above mentioned were recovered from bodies in one and the same group of tombs, the approximate period of which, as we shall see presently, is determined by inscriptional records.

Finds on body Ast. i. 3. b.

The second smaller body, *b*, in all probability female, had evidently been laid out in much the same manner as the first. It was found near the back wall of the tomb on a piece of much-decayed matting. Here, too, the face had a cover made of an originally circular piece of polychrome figured

[3] See Appendix *B*.

[4] See Chavannes, *Cinq cents contes et apologues extraits du Tripiṭaka chinois*, i. p. 248.

silk, Ast. i. 3. b. 01, showing a design which is unmistakably 'Sasanian' in character. This fine fabric is in so perished a condition that it is impossible to guess the origin of the flakes of gold-leaf and copper found in the dust accompanying it. The use of the small case of silk damask, i. 3. b. 02, containing lead, which was found with this body is also uncertain. Over the eyes was placed a pair of silver 'spectacles', i. 3. b. 03 (Pl. LXXXIX), closely corresponding in shape and make to the one already described from the head of body *a*. Below this and covering the eyes-sockets were found two Sasanian silver coins, which Mr. Whitehead has identified as issues of either Khusrū I (Naushirwān, A. D. 531–79) or Hormazd IV (A. D. 579–91).[5]

Other objects found in Ast. i. 3.

There may have been originally some objects of value deposited with these bodies; for mixed up with the layer of earth and decayed matting near them there were found the following small articles, which the first pillagers of the tomb had evidently overlooked when turning the bodies out of their coffins. The three small discs of silver, i. 3. 06, with square holes in the centre, were obviously made in imitation of Chinese copper coins. The seven thin plates of silver, i. 3. 012 (Pl. LXXXIX), crescent or pear-shaped, manifestly formed part of some ornament. The same may be assumed of the thin strip of plain gold, i. 3. 013. Seven glass beads, i. 3. 07, were also recovered, and a Chinese copper coin of the *Wu-shu* type, with a legend in four characters, reading *ch'ang p'ing wu shu* 常平五銖. Of other articles found in the tomb may be mentioned seven pottery food bowls, i. 3. 014–20 (Pl. XC), painted outside in tempera, with patterns similar to those on the vessels from Ast. i. 1. 2, and a well-carved wooden duck, i. 3. 021, of exactly the same style and execution as that recovered from the tomb i. 1. Under a half-rotten wooden trough, which lay upturned in the south-eastern corner, were found large pieces of a white dough-like mass, probably some hardened bread stuff.

Sepulchral records on bricks dated A. D. 608 and 646.

On clearing the trench leading to tomb i. 4 we found, at a distance of 26 feet from the entrance of the latter and almost on the surface, three inscribed bricks, placed against the southern side of the approach. The characters, much effaced in places through exposure, were painted in red on black ground. The photographic reproduction of these inscriptions was consequently difficult, and I regret that it has not been possible, from the negatives taken, to obtain satisfactory prints. In the copies of these inscriptions made by Li Ssŭ-yeh, Dr. L. Giles has, however, been able to recognize with certainty dates corresponding to A. D. 608 and 646. [For a complete rendering of these inscriptions by Dr. L. Giles, see now Appendix *I*. It shows that the slab of A. D. 608 records the death of the widow of one Chang Shu-ch'ing. Her maiden name was Ch'ü (that of the House which reigned in Kao-ch'ang until 640). The two inscriptions of 646 commemorate a lady of the same family and her husband Chang Yen-hêng.] These dates agree well with that corresponding to A. D. 632, found on the inscribed brick from a neighbouring tomb, Ast. i. 6. 08 (Pl. LXXV), of which M. Maspero has furnished a translation in Appendix *A*.

Chinese writings found in Ast. i. 4.

In the tomb there were found three bodies, corresponding to the number of separate burials indicated by the inscribed bricks. They lay with their heads to the north and were all badly decayed. With their heads there were neither face-covers nor 'spectacles' nor coins. A number of fragmentary Chinese MSS. on paper, including a large piece, were discovered near the body lying closest to the entrance. [M. Maspero's preliminary examination has shown that some of them belong to Buddhist texts, while the large document (018) contains a register of official correspondence received by some bureau of the Chinese administration in Turfān after the T'ang conquest. This brief record of the contents of the various letters registered throws interesting light on the organization of the administrative offices and their activities.] Apart from these documents, which may have served as waste paper to support the bodies or for some similar purpose, the only objects found

[5] See Appendix *B*. [5a] Cf. Appendix *B*.

in the tomb were a large roughly made eating tray, with remains of food deposits, including bones of a sheep and a grape stalk, and a number of jars and bowls in wood or pottery (Fig. 320), ranged along the walls on the north and south. Their decoration with bands of white discs, painted in tempera, closely resembles that of vessels from Ast. i. 1, 2. Those of turned wood, as the specimens Ast. i. 4. 01–8 show, had their interior solid with only a shallow depression at the mouth, a clear indication that all the vessels found in these tombs were specially intended for sepulchral use. A curious object is the pottery fragment Ast. i. 4. 012 (Pl. XC), in the form of the short leg and hoof of an animal, with incised lines and circles.

Textile finds in Ast. i. 5.

Tomb i. 5, which lay nearest to i. 1 in a southerly direction, was found to contain three bodies, lying with their heads to the south. The one next to the entrance, *a*, was big, obviously of a man, while the one in the middle, *b*, was small and probably that of a woman. The fabrics covering these bodies were much decayed, except the cap-like face-cloths found on the heads of *a* and *b*, and some shreds from a lined silk garment found on *a*. From the mouth of *a* a thin gold coin (Pl. CXX) was recovered, derived like the one in Ast. i. 3 from a type of Justinian I, but struck only on one side and manifestly a more distant imitation; and from over the eyes the silver 'spectacles' Ast. i. 5. a. 02 (Pl. LXXXIX). The central portion of the face-cloth i. 5. 03 (Pl. LXXVI) consists of a piece of polychrome figured silk, remarkable for its fine design of pure 'Sasanian' style and fortunately well preserved. It shows a very stylized boar's head in powerful angular treatment, enclosed within the characteristic pearl border of 'Sasanian' figured textiles. From the same body were also obtained the fragments of figured silk fabrics i. 5. a. 01 (Pl. LXXXIV), among which the damask *c* is of special interest as being worked in a pattern of undoubtedly early Chinese origin. The face-cloth of *b* was made of a polychrome figured silk, i. 5. b. 01 (Pl. LXXIX), which presents features of special interest in its design by combining 'Sasanian' composition with Chinese motifs. Here, too, silver 'spectacles', i. 5. 04 (Pl. LXXXIX), were found.

Painted silk cover of head.

The head of the body *c*, which was apparently that of a youthful male, was wrapped up in several layers of thin silk fabrics all badly decayed. Of the outermost wrap of blue silk, which had apparently been wound also round the body, enough, however, survived to show that the portion covering the face had been painted with two faces in profile, one on each side, drawn in clear and bold outlines over an *intonaco* of white chalk. When the head was brought outside the tomb for closer examination, parts of this painted silk broke off in the gentle breeze before a photograph could be taken. This outer silk wrap as well as those below it crumbled into dust on being touched when their removal was attempted. One of the latter appeared to have also been painted with a kind of 'spot' pattern of red circlets, &c. The eye-holes were found covered with small circular pieces cut from thin wood or the side of a gourd. The fragment of a finely cut wooden comb, i. 5. 07, suggests that toilet articles may also have been deposited in the coffins that once contained these bodies.

Inscription of Ast. i. 6, dated A.D. 632.

The adjoining tomb, i. 6, is of special interest. The inscribed brick Ast. i. 6. 08 (Pl. LXXV), found in the approach trench and well preserved, gives the exact date of the burial of one of the two bodies found in it, and the similarity of the burial practices illustrated here and in the other tombs of this group proves that they all belong to approximately the same period. This burnt clay slab has its inscribed face coloured light blue and shows Chinese characters painted in vermilion over white within small compartments divided by horizontal and vertical lines. The inscription, of which a translation has been kindly furnished by M. Maspero,[8] contains an obituary eulogy of the official *Chang* 張, a native of Tun-huang, who served the Kao-ch'ang State in a military capacity, and died, at the age of seventy-three, in the ninth year of the local Kao-ch'ang Nien-hao *Yen-shou*,

[8] See below, Appendix *A*.

corresponding to A. D. 632.[7] From this date and those recorded in the inscriptions from Ast. i. 4 we may safely conclude that the burials in this group of the Astāna cemetery belong to the early part of the T'ang period, either before or after the annexation of the Turfān territory to the Chinese Empire, in the year 640.

Of the two bodies lying with their heads pointing southward, the one, *a*, nearer to the entrance, was found in a strangely animated position, with the left leg bent at the knee while the right rested on the ground with one foot touching the other foot. The body was kept in place by two bricks pushed underneath the matting. In the disturbed condition of the tomb it was difficult to be sure whether the body, which by its size was manifestly that of a man, had been buried without a coffin or had been so poised by some pillager in a playful mood after he had turned the corpse out of its coffin. In any case it is certain that it retained the pose assumed in death agony. The outer shroud of buff silk was badly decayed, and broke at touch; but as the fragments i. 6. 02 show it still retained colours applied in bold ornamental outlines. The right hand, i. 6. 05, clasped a small wooden cylinder wrapped in silk. Another such cylinder, wrapped round with a figured silk, i. 6. 06 (Pl. C), was found lying between the two bodies. From the head of the other body, *b*, which may have been that of a woman, was recovered the fragmentary face-cover of polychrome figured silk, i. 6. 01, showing a 'Sasanian' pattern with a boar's head and pearl border, similar to Ast. i. 5. 03 (Pl. LXXVI), but smaller. Underneath was found the pair of silver spectacles i. 6. 07 (Pl. LXXXIX). The mouth of *b* held a thin gold coin (Pl. CXX), struck on one side only, showing the three-quarter face bust of Justinian I, as it appears on the Byzantine coins of which this and the gold pieces from Ast. i. 3. and i. 5 are undoubtedly imitations. Two *Wu-shu* coins, in perfect condition, were found near the head of *b*. In the south-western corner of the chamber, which was only 4½ feet in height, there hung fastened to the ceiling by a twig a rag of completely rotten material, apparently silk. It was interesting as a proof that the rags found clinging to the wall of tomb i. 1 had been placed there on purpose.

Bodies found in Ast. i. 6.

Among the remaining tombs of group i, which all appeared to have been searched in recent years, there were two at the north-eastern end in which Mashik stated that he had left some figures in stucco. These were found to have been almost completely smashed up by boys, who had amused themselves in the opened tombs and also played havoc with the corpses. In both tombs, however, the plan (Pl. 32) was of interest, being more elaborate than that of the tombs previously described. In i. 7 the outer entrance led into a narrow passage, from which access was gained by a second gate to a small central hall, about 8 feet square. This was flanked on either side by a little cella, 5½ feet square, which appeared to have served as places of deposit for stucco figures and other sepulchral objects. The tomb chamber proper adjoined the side facing the entrance; it measured 13 feet by 12 and had on three sides a low platform, 4 feet wide. The only stucco figures that remained in a recognizable condition were the well-modelled demon's head, Ast. i. 7. 07 (Pl. CIII), and the body of a humped bull, i. 7. 014 (Pl. CIII), also well executed. The fragment of a wooden model of a house, i. 7. 08 (Pl. XCIV), showing the front painted with a two-leaved door and with flowering plants growing up the wall, is of interest. The wooden railing posts and slabs i. 7. 09–10, 012–13 (Pl. XCIV), also probably belonged to the same model. Among the rags which had been torn from two almost completely shattered bodies were found the printed silk i. 7. 01 (Pl. LXXXII), and the fine damask pieces i. 7. 03, 05–6 (Pl. LXXIX, LXXXIV). They are of interest owing to

Plan of tomb Ast. i. 7.

[7] The family name 張 borne by this official is identical with that of the family or clan which, as we know, supplied Tun-huang with its hereditary governors or semi-independent chiefs during most of the T'ang period, and also played a very important part elsewhere on the Kan-su marches from the fourth century onwards; cf. Chavannes, *Dix inscriptions*, pp. 12, 80; *Anc. Khotan*, i. p. 543, note 4; *Serindia*, i. p. 409; ii. pp. 838, 840; iii. p. 1338; also above, ii. p. 575.

their designs, which are of manifestly Chinese character and show points of close contact with figured silks from the 'Thousand Buddhas' of Tun-huang.

Sepulchral deposits in Ast. i. 8.

The tomb i. 8 (Pl. 32) was provided with two small anterooms and in its inner chamber, 8½ feet square, with a low brick-built platform. Among the rags left with what remained of the only body that could be traced here, were fragments of polychrome figured silk, i. 8. 01–3 (Pl. LXXVIII, LXXXVII), with rosette designs also reminiscent of Ch'ien-fo-tung fabrics. The well-preserved pair of scissors i. 8. 05, and the head net i. 8. 06, suggest that the body was that of a woman. The piece of canvas i. 8. 04, painted in tempera to imitate brocade, is curious. Of sepulchral attendant figures there were recovered the well-modelled woman's head in stucco i. 8. 08 (Pl. CI), with the hair dressed in 'pompadour' fashion; a roughly dressed-up straw man, i. 8. 010 (Pl. XCI), and a small and roughly modelled dough man, i. 8. 09 (Pl. LXXXIX).

## Section II.—FIGURINES AND OTHER SEPULCHRAL DEPOSITS IN GROUPS ii–v

Tomb Ast. ii. 1.

In order to acquaint myself with possible variations in the practice of burial, I turned next to a group of about a dozen tombs at the south-western extremity of the cemetery area, near the road leading from Sengim-aghiz to Ābād (Pl. 31). About half of them appeared to have been searched recently. In the trench leading to Ast. ii. 1, the first tomb here examined, we soon came upon evidence of an earlier plundering. At an early stage of the removal of the drift-sand, which had completely filled up the trench again, fragments of a wooden coffin emerged, with part of a corpse and pieces of the coarse rope which had been used to drag the coffin out. Evidently those who had worked here had wished to examine their haul in daylight. Of the paper painting Ast. ii. 1. 01–3 (Pl. CVII), one portion was found outside the entrance, the other within the tomb. It represents figures in voluminous garments and with their hair dressed in an elaborate fashion with wing-like appendages. Comparison with the dress and coiffure shown in certain Ch'ien-fo-tung paintings proves that the figures are those of women. Judging from the objects depicted, a scene in the future life of the deceased appears to be intended.

Sepulchral deposits.

The single body that still remained in the tomb lay with its face downwards and a piece of matting on its back, obviously just as it had been thrown out from its coffin. It was wrapped in a much-decayed patchwork of printed silk pieces, padded and lined with coarse canvas, as seen in the specimens Ast. ii. 1. 014–15. This practice of dressing the dead in what was evidently old worn clothing, or meant to be representative of it, naturally reminded me of the condition of the ragged silk fabrics recovered in the grave-pits of the Lou-lan cemetery L.C. as it must have been when these were placed round the dead bodies. The sepulchral deposits in the tomb had been much disturbed when it was first plundered; but the remains recovered sufficed to show their general character. Among them are pieces from miniature carriages in wood, ii. 1. 09–10, 12–13 (Pl. XCIV); the wooden figurine of a man, painted and fitted with movable arms, ii. 1. 06 (Pl. CIII); the wooden leg of a cow or bull, ii. 1. 011, of which the body was probably modelled in clay; a wooden ladle, ii. 1. 07 (Pl. CIV), of a characteristic curved shape dating from Han times; a number of miniature flags made of twigs and scraps of silk or paper, ii. 1. 04–5. Some small models of garments, like the silken sleeves ii. 1. 020, and the little shoes of figured silk ii. 1. 022 (Pl. XCIII), were evidently meant to symbolize provision for the needs of the dead in another world. Some wooden pegs, ii. 1. 023–6 (Pl. CIV), showing at the top a rudely drawn face and Chinese characters below, may throw light on the purpose served by very similar pegs found along the Han Limes.[1]

The tomb Ast. ii. 2 adjoining on the south measured about 10 feet by 9½ and, as seen in Pl. 32,

[1] Cf. *Serindia*, ii. p. 767 (*T. 002); above, i. p. 416, T. XXII. d. 027; p. 423, T. XLIII. h. 013.

had a baldachin-shaped roof rising above walls 3 feet high. A roof of the same shape was found also in ii. 1. The wall facing the entrance was whitewashed up to a height of 1 foot 8 inches and on this were paintings divided into four panels. That on the extreme left had become effaced. The next showed on the right a man, and on the left, facing him, a woman, obviously representing the wife. In the third panel a poorly drawn camel and horse and in the fourth a cart drawn by an ox were still recognizable, together with some flowering plants. The work was done in bold outlines but roughly, recalling in technique the rough pictures on paper from Ch'ien-fo-tung. Two bodies were actually found in the tomb, both lying face downwards, as thrown out from their coffins. A half-charred piece of wood showed what had become of the latter. The bodies were wrapped in pieces of coarse cotton fabrics and plain silk, all rotten. The remains of deposits symbolizing the outfit and attendants provided for the dead were found on either side of the entrance, where they had been thrown by the plunderers. They comprised the roughly carved wooden figures of two men and a woman, ii. 2. 05–7 (Pl. CIII); wooden legs of a cow or bull, ii. 2. 08–10; shaped pieces of wood, ii. 2. 011, 016–17, which appear to fit into a frame and may have belonged to the model of a house; miniature carriage wheels, ii. 2. 018–20; miniature flags, ii. 2. 02, &c. The elliptical black-lacquered wooden bowl ii. 2. 021, repaired in antiquity, is of interest, as it is of the typical shape of those excavated along the Han Limes. The large lacquered tray ii. 2. 01 was found broken into many pieces. The two pottery tazzas ii. 2. 022–3 (Pl. XC) differ markedly in shape from the pottery found in cemetery i. Two other tombs that I had cleared at this group ii yielded no finds of interest, one being completely empty and the other holding only one body, clothed as those in ii. 2, without any deposits near it. It may be noted here that the entrances of these tombs in ii lay from the north-west.

Paintings on wall of Ast. ii. 2.

I next moved our party of diggers to a group of tombs, Ast. iii, marked by a regular enclosure near the north-western extremity of the area. It contained nine tombs (see plan Pl. 33); all had their entrances towards the south-west and several among them had evidently been recently opened. The middle one of the front row, iii. 1, had two oblong anterooms and a chamber about 8 feet square. No remains of any sort were found in it, except a large number of remarkably well preserved pieces of fancy pastry scattered over the platform which was meant to accommodate the coffin with the dead. The remains of fine pastry recovered here are as remarkable for their variety of shapes as for their excellent conservation. As Pl. XCII shows, there are represented among them flower-shaped tartlets of different kinds (iii. 1. 021–5, 070) with neatly made petal borders, some retaining traces of jam or some similar substance placed in the centre; bow-knots and other 'twists', iii. 1. 030–41, 084–7, 094; buns, divided cross-wise, 026–9; 'cracknels', 071–83, and 'straws', 01–12. More elaborate productions of the confectioner's art are the thin ornamented 'wafers' 013–20, 042–65, and the ogee-shaped open-work cakes 066–9, with finely ribbed sprays of foliage, &c. Some black grapes also were found here, shrivelled but otherwise in good condition. Considering the brittleness of all this pastry it seems difficult to believe that it could have occupied the place where it was found before the coffin was removed from there. But no indication was discovered of the tray or other receptacle originally containing it.

Fancy pastry in Ast. iii. 1.

The tomb iii. 2 to the east of the one just described had been searched some years before by Mashik, who remembered having seen and left behind in it numerous clay figures. His statement was proved correct by a number of interesting finds. In clearing the approach trench there was found just outside the entrance a *K'ai-yüan* coin, of the type current throughout the T'ang period, showing little or no wear. The tomb chamber, as seen in Pl. 33, was approached through two narrow anterooms, of which the inner one had a rounded niche, 3 feet deep, on either side intended for the accommodation of clay images representing guardians of the dead or his attendants in another

Stucco sculptures in Ast. iii. 2.

life. The badly battered body lay on a low platform at the back of the chamber, which measured approximately 12 feet by 10. From the decayed fabrics in which the body had been wrapped the fragments of figured or painted silk, Ast. iii. 2. 03-4 (Pl. LXXVIII), and of the patterned silk gauze, 01 (Pl. XXXVI), and veiling, 02 (Pl. XXXVI), were recovered. In front of the platform but thrown on one side lay the clay figure of a monster (Fig. 325), with a grinning human head and the body like that of a panther, sitting on its haunches and wearing a three-cornered hat. The grotesque head was well modelled, the colouring of the whole crude. The body was painted pink in front and blue at the back, both sides being covered with bright red spots. A bushy blue tail and four wing feathers found broken added to the grotesque look of the monster. Like the other two monsters to be mentioned presently, this demon was probably meant to keep off evil spirits from the abode of the dead, like the *Tu-kuei* figures found in T'ang tombs of China.

The small niche on the west of the anteroom next to the tomb proper held another monster, seen on the left in Fig. 325, with a half-human boar-like head showing prominent green eyebrows and wearing a peaked cap in rainbow colours. Its body was painted yellow with bright red spots. In the opposite niche was found a third monster, Ast. iii. 2. 059 (Pl. XCVI), which being in better preservation than the others could be safely removed and is fully described in the List below. It carries on a lion-like body a head suggesting that of a dragon, painted in brilliant if not harmonious colours, still very fresh. Here, too, the curving wings were made of painted wood, while the heavy brush-like tail is of clay and shows variegated bands of vivid colours. The exact identification of the demonic guardians intended must be left to Sinologist students.

Clay figures of horses from Ast. iii. 2.

In the same eastern niche were found lying in disorder the clay figures of the two saddled horses, iii. 2. 057–8 (Pl. XCV, XCVII), and of a camel equally well modelled but unfortunately badly broken. The former are about two feet high and very spirited and carefully executed representations of the type of horse that frequently appears in T'ang sculpture and is represented also in some of the Ch'ien-fo-tung paintings.[2] With their small well-shaped heads and long necks they distinctly recall the present Badakhshī breed, which is highly prized on both sides of the Pāmīrs. The same type, though less carefully rendered, is found also in the other clay horses from the same tomb, iii. 2. 014–16, 20–1 (Pl. XCIX). The representation of the saddles and saddle-cloths on those two horses is likewise very careful and interesting. The ornamentation of the latter undoubtedly is meant to reproduce the embroidery design on 'Numdahs' or felts such as are still used throughout Turkestān in 'horse millinery'. The elaborate flower and palmette patterns, found on the saddle of iii. 2. 058 (Pl. XCV), closely resemble the floral designs used as decorative motifs in the framing of certain Ch'ien-fo-tung silk pictures and wall-paintings.[3]

Stucco figures of riders, Ast. iii. 2.

In the niche on the opposite side and in front of it there lay in confusion an assortment of clay horses of smaller size, with figures of riders either still adhering to them or alongside. Special interest attaches to the careful representation of the saddlery of the horses, iii. 2. 014–16, 20–1 (Pl. XCIX, XCIX. A). It includes narrow high-peaked saddles placed on tiger-skin saddle-cloths and white Numdahs, with straps flowing from the back of the saddles, just as they appear in sculptures and paintings of T'ang times. Among other items of 'horse-millinery' notice may be taken of the elaborate decoration of the trappings with large tassels, such as are also seen on the horse shown by a painted panel from Dandān-oilik and on Sasanian relief sculptures.[4] The figures of the riders are with one exception those of men (iii. 2. 012–13, 23–4, Pl. XCIX, CII), dressed either in scale-armour and pointed helmet of mail or in tight-fitting coats with high-lobed caps such as form part

[2] Cf. *Serindia*, iv. Pl. LVIII (Ch. lviii. 001), Pl. LXXV (Ch. xlvi. 007); Pl. LXXVI (Ch. lxi. 002); *Th. Buddhas*, Pl. IX, XII.

[3] See *Serindia*, ii. Figs. 202, 206, 208, 219–20, &c.; *Th. Buddhas*, Pl. XLII.

[4] See *Anc. Khotan*, i. p. 298; ii. Pl. LIX (D. vii. 5).



**320.** JARS AND BOWLS IN WOOD OR POTTERY, ALSO FOOD TRAY, FROM FUNERARY DEPOSIT OF AST. i. 4, ASTĀNA CEMETERY.

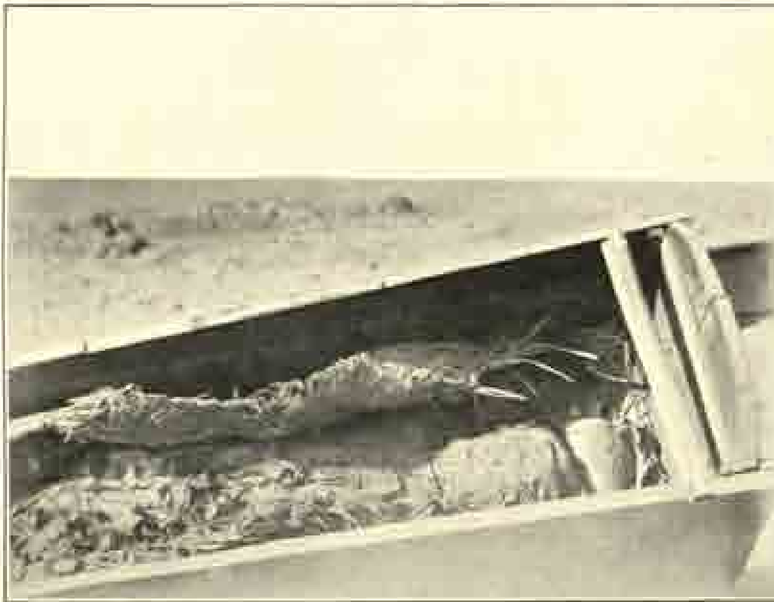


**321.** TUMULI ABOVE TOMBS IN ANCIENT CEMETERY NEAR 'BEDAULAT'S TOWN', TURFĀN.



**322.** COFFIN WITH CORPSE FROM TOMB AST. ix. 2, ASTĀNA CEMETERY

Carved wooden pedestal for funerary deposits in foreground.



**323.** HEAD OF COFFIN, HOLDING WRAPPED CORPSE OF MAN, FROM TOMB AST. ix. 2, ASTĀNA CEMETERY.



**324.** MUMMIFIED CORPSES OF MAN AND WOMAN FROM SEVENTH CENTURY TOMB, AST. ix. 1, ASTĀNA CEMETERY.



**325.** PAINTED STUCCO FIGURES OF MONSTERS FROM TOMB AST. iii. 2, ASTĀNA CEMETERY.

of the costume of donors in the older Ch'ien-fo-tung paintings, and of the quasi-archaic dress of certain figures represented in scenes from Buddha's life, &c.[5] The faces, though perfunctorily modelled and painted, are of unmistakably Chinese type, and so is also that of the well-executed figure of the lady rider, iii. 2. 022 (Pl. XCIX. A). Her hair is done in a high topknot, after a fashion found also on some earlier donatrix figures in Ch'ien-fo-tung paintings.[6] The curious steeple-crowned clay hat iii. 2. 017 (Pl. XCIX) fits her head.

All these mounted figures as well as those of the standing men, iii. 2. 010, 049–50 (Pl. CII), were evidently meant to symbolize the retinue desired for the dead in his future abode. With them was found the monster-headed clay figure, iii. 2. 048 (Pl. CII). The wooden cores of all the figures were prolonged below to facilitate their being fixed upright on the ground or attached to the clay horses. The sepulchral deposits of this tomb also included the wooden chalice iii. 2. 056 (Pl. XCIII), painted with ornaments; the well-preserved bunch of grapes iii. 2. 047 (Pl. XCIII); the various specimens of fine pastry iii. 2. 030–46 (Pl. XCII), identical in type with those found in Ast. iii. 1; the small canvas bag iii. 2. 051, filled with the chaff of some grain, and a small lacquered basket, iii. 2. 055 (Pl. XCIII). Two pieces of paper with Chinese writing [apparently containing lists] may have come from the coffin or else been used in the core of some completely broken clay figure after the fashion of the paper rolls attached as arms to iii. 2. 010 (Pl. CII). Other objects from Ast. iii. 2.

The tomb iii. 3, the most westerly of the front row (Pl. 33), held two badly injured bodies on the platform of its inner chamber but yielded only fragments of silk from the mixed fabrics wrapped round the corpses, one with a floral pattern painted in 'resist', iii. 3. 02 (Pl. XXXVI); a well-made wooden comb, iii. 3. 05; and a mass of crumpled-up Chinese papers, evidently 'waste' records and the like, which was found in front of the bodies. Judging from Mashik's and our own experience elsewhere, these papers had probably been used as a 'filling' in the coffins. Finds of Chinese documents in Ast. iii. 3.

[The contents of a number of these 'waste papers' are of distinct antiquarian interest, as shown by the detailed analysis of which M. Maspero has kindly communicated to me the results in a series of notes. Apart from small fragments including a Taoist text, a private letter, a statement of account for grain, and the like, they comprise official records concerning the establishment of horses and other animals maintained for postal services by the Chinese administration of the district of *Hsi-chou* 西州 or Turfān during the early part of the eighth century. Among the large documents there are portions (Ast. iii. 3. 09–10) of two registers detailing the distribution and employment of transport animals in the sixth month of the tenth year *K'ai-yüan*, corresponding to A. D. 722. The age, sex, distinguishing marks, &c., of each animal are exactly described; their condition on return from service and the persons in charge of them, &c., duly noted. Incidentally reference is made to the passage on retirement of the 'Deputy Grand Protector General of An-hsi', T'ang Chia-hui, who is also known to the T'ang Annals.[7]

Other papers (Ast. iii. 3. 06, 034, 036), also dating from A. D. 722, deal with affairs relating to the establishment of horses and other animals maintained in the subdivision of P'u-ch'ang, dependent from Hsi-chou, for postal and other official purposes. They show the minute care with which account was kept not merely of the animals on the roll but also of those lost by death, of their skins, &c. Curious, too, is a file of documents (Ast. iii. 3. 014, 015, 022, &c.) connected with a suit which had been brought in A. D. 743 against a certain official charged with having extorted payments from subordinates and with similar malpractices. These and similar records recovered from the 'waste paper' of Astāna tombs are likely to prove instructive by the sidelights they throw on the varied petty activities in the administrative routine of T'ang times.]

[5] Cf. *Serindia*, ii. pp. 849 sq., notes 18, 23, p. 885; iv. Pl. LXXV, LXXVI; *Th. Buddhas*, Pl. X–XII, XXXVII.

[6] See *Serindia*, ii. p. 851; *Th. Buddhas*, Pl. X, XI, XXXV; also Vignette.

[7] Cf. Chavannes, *Turcs occid.*, p. 283, n. 2.

Body wound in ragged fabrics, Ast. iii. 4.

The tomb next examined, iii. 4, situated in the north-eastern corner of the enclosure, offered compensation for the scantiness of the sepulchral deposits found in the last one. As seen in Pl. 33, its plan was unusually elaborate, a small outer room giving access first to another of cruciform shape and thence to the tomb chamber, which was provided with a kind of alcove raised 1½ feet above the general floor level. The contents of the tomb had fared badly at the hands of those who had first opened and plundered it, but nevertheless proved of distinct interest. The headless body of its occupant was found in the approach trench close to the entrance where the coffin had evidently been dragged to be searched in daylight. The head was subsequently discovered within the tomb. The body was wound in a miscellaneous assortment of rags, ranging from pieces of silk, plain or figured in monochrome (iii. 4. 06), to coarse cotton and thin leather. On the sole of one foot was found a torn piece of paper with Chinese writing, which had been used for the same purpose amidst other rags. My explanation of the mass of torn fabrics of all kinds that we had found a year before mixed up with human remains in the grave-pits of the Lou-lan cemetery L.C.[7a] could not have been more satisfactorily confirmed.

Stucco figures and frs. of wooden models.

Within the high layer of drift-sand which had invaded the anterooms we came upon scattered fragments of stucco figures similar to those of Ast. iii. 3, but all with a few exceptions badly broken. Among these were the large and well-modelled clay figure of a Bactrian camel, iii. 4. 015 (Pl. XCVIII), painted a pinkish white, with its head raised and thrown back in life-like movement; the carefully executed stucco figure of a lady, iii. 4. 064 (Pl. XCIX. A), dressed in a costume which, like her coiffure, closely resembles that of the donatrix figures of two early Ch'ien-fo-tung paintings, liii. 001; Ch. xlvii. 001.[8] The pair of figures in stucco and wood, iii. 4. 072. a, b (Pl. CII), also have carefully modelled heads, with lobed black caps such as appear on the heads of donors of the same Ch'ien-fo-tung paintings and on those of various persons represented in others depicting scenes of Buddha's life; the clothes in which these two figures were dressed have been lost but for a small remnant.[9] We have in iii. 4. 073 (Pl. CII) a similar figure of a man, remarkable for the naturalistic treatment of the excellently modelled head. Very numerous are the fragments of painted wood, comprising miniature balustrades, bridges, arches, &c., iii. 4. 027, 035–60, &c. (Pl. XCIV); they appear to have belonged to an architectural model, possibly intended to represent a celestial mansion such as figures in many of the Ch'ien-fo-tung paintings. The fragments of a wooden pedestal or stand, iii. 4. 021, 028–33, 062 (Pl. C), are of interest as its shape resembles that of stands in the Shōsōin, and the design of its decoration with drifting palmettes occurs there also. To a miniature model of a similar stand belonged the pieces iii. 4. 052–4 (Pl. XCIV). A similar stand was found intact in ix. 2.[9a] These stands may possibly have carried the pastry cakes iii. 4. 065–71, and similar offerings for the dead. To these belonged undoubtedly the strings of paper 'cash', iii. 4. 04 (Pl. XCIII), and perhaps also the artificial leaves made of silk, iii. 4. 02.

Remains of painted scroll.

But the object claiming most interest among the relics of this tomb is certainly the fine painting on silk iii. 4. 010 (Pl. CV, CVI), unfortunately surviving only in the form of numerous fragments. They are all extremely brittle, and only the exercise of great care made it possible to recover them safely, while clearing the sand from the floor of the principal chamber of the tomb. What position the painting had originally occupied it was impossible to determine. But the arrangement observed in the large piece, of which Pl. CV reproduces the most interesting portion, made it clear at the outset that the fragments belonged to a Makimono-like scroll which had been roughly handled and broken up when the tomb was plundered. Pl. CVI shows the most characteristic of the remaining

[7a] Cf. above, i. p. 231.

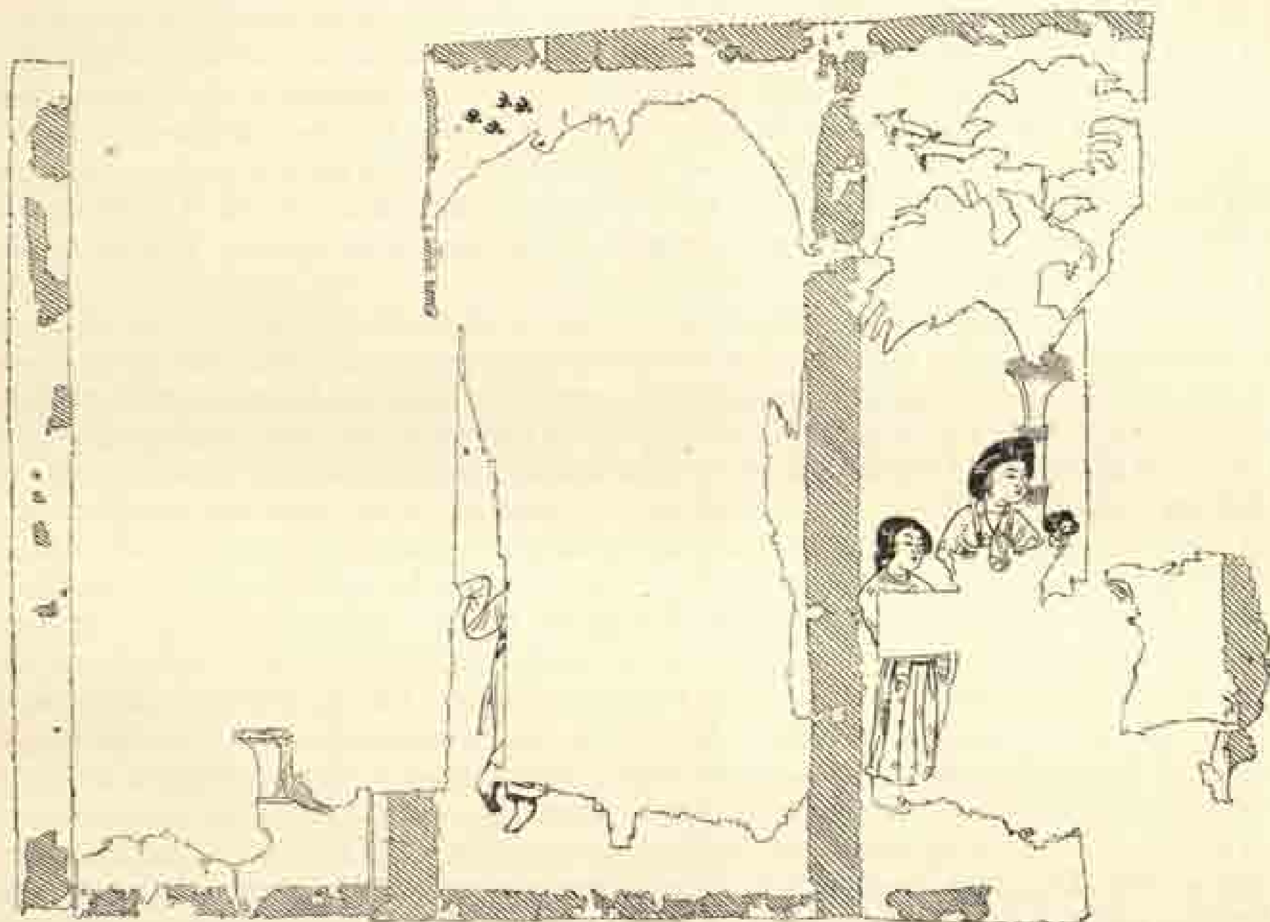
[8] See *Serindia*, ii. pp. 1049, 1056; *Th. Buddhas*, pp. 21 sq., Pl. X, XI; also above, p. 653, concerning Ast. iii. 2. 022.

[9] The small silk 'sleeves', iii. 4. 03. a, 09, found detached may possibly have belonged to these or similar figures.

[9a] Cf. below, p. 664.

fragments, not arranged with any attempt at conjectural reconstruction of the composition but merely assembled for convenience of photography. By joining up the large piece already referred to with fragments which show a continuation of the framework of brown silk strips originally dividing the whole picture into panels, it has become possible to indicate in the sketch below the approximate arrangement and proportions of these panels.

The 'General Note' which Mr. Andrews has included in the List below, besides his full descriptions of individual fragments, would have, in any case, allowed me to restrict my remarks here to essential points. But my task in this respect is still further lightened by the fact that the



SKETCH-PLAN SHOWING ARRANGEMENT OF PANELS IN SILK PAINTING AST. iii. 4. 010.

character and art interest of this painting have been lucidly summed up by so competent an expert as Mr. Laurence Binyon in the article with which he accompanied the preliminary publication of the plates made by me in the *Burlington Magazine*.[10] It seems best to reproduce here, with Mr. Binyon's permission, those of his observations which have a direct bearing on the subject of our picture and its importance for the student of Far-Eastern art.

Mr. Binyon on subject and scheme of painting.

'The general scheme of the painting seems clear. It was a frieze-like composition, whether meant to be rolled or not, divided into compartments by strips of thin brown brocade pasted on to the silk, and framed at top and bottom by a narrow border of the same material. One of the upright strips has been preserved entire, so that we know the height of the picture to have been about 21 in.; we can also tell that the width of one compartment, and possibly of all, was about

[10] See 'Remains of a T'ang Painting, discovered by Sir Aurel Stein, described by Laurence Binyon', *Burlington Magazine*, June, 1925, pp. 266–75.

8¾ in. In each division was a group of figures standing under a tree. Some of these were ladies with attendant pages, others were dancers and musicians. Pl. CV gives a hint of the grouping, and the plan on p. 655 shows the proportions of the complete panel, though it must be said that the upper part of the tree may possibly not belong to the palm-like stem below, but to a similar tree in another panel. The more the fragments are studied, the more one is driven to the conclusion that the painting was of considerable extent, and that pieces which at first sight seemed to belong to the same group are not really connected. For instance, it was tempting to find a place for the scarlet skirt on Pl. CVI in the group under the palm, but, for one thing, the edge of skirt showing in that group has a pattern of three white spots, not four. Such a pattern occurs on the red sleeve of the page at the right-hand side of Pl. CVI; but he stands under a spray of fruit blossom, and must belong to a different panel. Similar dresses, it is obvious, were repeated in the different groups.

'Of the three fragments of green foliage, two appear to belong to the same tree; the third is different, perhaps mulberry.[10a] This presumes two panels; the palm gives a third, and there was at least one panel, if not more, with a blossoming fruit-tree (peach or almond ?). The bamboo-like stem behind the head of the lady in the centre of Pl. CVI suggests a fifth panel. The whole would seem to have pictured a musical festival in honour of spring.'

Links with early relics of Japanese painting.

Mr. Binyon next proceeds to point out those features of detail and general style which link our fragments with 'some of the most ancient relics of Japanese pictorial art. The lady and page under the palm recall by their grouping, attitude, and expression the famous portrait of Prince Shōtoku and his two sons, in the collection of the Imperial Household.'[11] There is close resemblance also in details of the page's dress, such as the ornamentation of the robe with little spots arranged in a lozenge pattern. A still more remarkable parallel is offered by the panels of a screen preserved in the Shōsōin, on each of which is painted a beautiful woman standing or sitting under a tree.[11a]

'But not only is the plan the same: the type of woman shows the same ideal of beauty—the T'ang ideal of full, rounded cheeks, small mouth with full, red lips, and rather massive figure—portrayed with same conventions, such as the two or three lines indicating the curves of the throat; and there is a remarkable similarity in the heavily heaped-up coiffure, with a big knot in front over the forehead. In both pictures we notice the same fashion of painting spots of colour on forehead and cheek. The Japanese painting was no doubt closely modelled on a T'ang prototype, even more closely, perhaps, than has hitherto been supposed. How interesting to find, far away on the other side of China, this confirming evidence! In the secular painting of this period, we infer, there was a common ideal of style which pervaded China from east to west and imposed itself even outside the Empire, and in the Astāna fragments we have a genuine echo of the central school of Chinese painting as it was in the early eighth century.'

Mr. Binyon's inference as to the common ideal of style pervading Chinese secular painting of this period is fully borne out by the fact that two pictorial relics, less elaborate in design and of simpler execution, which Mr. Tachibana recovered in the course of his Turfān excavations and which Count Otani has published,[11b] exhibit a similar character in subject and treatment. One of them bears a date corresponding to A. D. 716. The Japanese paintings referred to by Mr. Binyon may likewise be safely ascribed to the early part of the eighth century, the screen with the panels of 'Beauties under the Trees' certainly dating from before 748, when the dedication of the Shōsōin treasures took place.

[10a] 'We owe the suggested identifications of leaves and blossom to Dr. A. B. Rendle, Keeper of the Department of Botany in the British Museum.'

[11] See *The Kokka*, No. 147; Fenollosa, *Epochs*, &c., i. p. 52.

[11a] See *The Kokka*, No. 226; *Shōsōin Catalogue*, Pl. 111.

[11b] Mr. Binyon refers for these finds to Count Otani's publication in *Sai-iki Kōko Zufu* (1915), with Japanese text by Professor Sawamura.

Archaeological indications of date.

Even if the definite documentary evidence to be presently noticed were not available, we should be justified in attributing our painting to the same period of production on the ground of the archaeological indications furnished by certain of its details. The musical instrument played by a girl in the fragment (Ast. iii. 4. 010. e) on the right of Pl. CVI closely resembles in shape the type of the *genkan* which the *Shōsōin Catalogue* (i. Plates 41, 57) illustrates from specimens actually to be found in the great collection deposited by the Empress Kōken in A. D. 748. Similarly, the decorated wooden pedestal or stand, with carved arches below the top, a piece of which appears in the fragment, Ast. iii. 4. 010. b, seen at the bottom of the panel on the left in the sketch, p. 655, has its counterpart among the objects illustrated in the *Shōsōin Catalogue* (iii. Plate 147). The fact that the same ornamentation is also found on the fragments of the wooden pedestal iii. 4. 021, 028–33, 062 (Pl. C), and on the miniature model of such a stand, iii. 4. 052–4 (Pl. XCIV), deserves to be specially noted; for it supports the view that the painting is a work of the period during which the burial itself took place. Finally we find, in the attire and coiffure of the ladies, points of contact with figures from this and other Astāna tombs which can be confidently assigned to early T'ang times. They are, perhaps, less marked in the coiffures than in the dress of the ladies. This, with its narrow long sleeves, stole thrown over the shoulders (iii. 4. 010. c; Pl. CVI), and high waist, also recalls the dress of donatrices in the earliest of our Ch'ien-fo-tung paintings.[12] But there is a certain resemblance, too, in the mode of doing the hair with that seen on the stucco figures of women, such as Ast. i. 8. 08 (Pl. CI); iii. 2. 022 (Pl. XCIX), though the topknot, in the case of the ladies shown by our painting, appears to be brought forward in peculiar fashion. However this may be, attention should be called to the striking similarity between the ladies' coiffure here and that worn by the figure of the Chinese lady which in the fine Ch'ien-fo-tung painting, Ch. lvii. 002, represents a soul being guided by Avalokiteśvara to heaven.[13]

Dated documents from tomb Ast. iii. 4.

No sepulchral inscription could be found at the tomb which had yielded the remains of the remarkable painting just discussed, nor at any other of the tombs comprised in this group iii. The absence here as well as at other tombs of an inscriptional record such as might have furnished the exact date of the burial is sufficiently accounted for by the fact that the slabs of hard brick used for such inscriptions are nowadays prized locally as flooring material. It is therefore particularly fortunate that there were found in tomb iii. 4 close on two dozen crumpled-up Chinese papers, some complete, which judging from observations made in other tombs[14] must have been used to prop up and secure the body as it lay in the coffin. Among these 'waste papers' of iii. 4, which had been thrown out when the body was dragged away for closer search near the entrance and the coffin itself broken up for removal of its timber, not less than eight have proved to be exactly dated, and these enable us to fix the time of this burial with a close approach to accuracy. According to the information which Dr. Lionel Giles supplied to me after a preliminary inspection of these papers and before they were transmitted to M. Maspero for examination, five fairly large ones are official records dated in the first year of *Shên-lung*, corresponding to A. D. 705. Three others, among them a deed for the lease of a piece of land, bear dates corresponding to the years 690, 693, and 709. From the evidence supplied by these dated papers we may safely conclude that the burial took place during the first quarter of the eighth century or very soon after, and this conclusion is

[12] Cf. the ladies' dresses in *Th. Buddhas*, Pl. X, XI (Ch. liii. 001; Ch. xlvii. 001; *Serindia*, ii. pp. 1049, 1056); Pl. XXXV (Ch. 00260; *Serindia*, ii. p. 984); also in the stucco figures Ast. iii. 2. 022; iii. 4. 064 (Pl. XCIX. A), described above.

[13] See *Serindia*, ii. p. 1081; iv. Pl. LXXI. This curious similarity of head-dress may well suggest the question whether the difference in general style which distinguishes this fine picture from other representations of Bodhisattvas among the Ch'ien-fo-tung paintings may after all be due to some reason other than late origin, as there assumed.

[14] See below, p. 653.

in complete accord with the chronological indications derived from the style and details of the fragmentary painting as above analysed.

Records of A. D. 705 concerning postal horses.

[The annotated translations since received from M. Maspero of the five documents above mentioned have not only confirmed their dating from A. D. 705 but also shown their contents to be of much interest from an antiquarian point of view. These records have been found to belong to a file of reports and orders concerning losses which had occurred during the early part of the year 705 among the horses maintained in the district of Hsi-chou or Turfān for the postal service and other official purposes. The circumstances, locality, &c., in which the animals died are precisely recorded; the statements of the veterinary or other officers who investigated the individual cases with a view to ascertaining the cause of loss and fixing the responsibility for it are reproduced in full; information is recorded as to the delivery of the dead animals' skins, also whether it was possible or not to dispose of their flesh by sale, &c. The mention of particular localities where losses occurred helps us, in conjunction with the data furnished by the references in the T'ang Annals, to trace regular postal stages on those much-frequented main routes[14a] which led, then as now, from the Turfān basin towards I-chou or Hāmi, Pei-t'ing, and Yen-ch'i or Kara-shahr. These quaint records aptly illustrate the difficulties which necessarily attend transport on lines of communication leading through what was at that time, as it is to-day, mainly desert. They throw light, moreover, on the methods of meticulous organization by which the Chinese administration constantly endeavoured to counter these difficulties of nature and to economize resources.]

Remaining tombs of Ast. iii.

In the north-eastern corner of the same enclosure a fifth tomb, Ast. iii. 5, was also explored. It proved to be completely empty, though the large amount of drift-sand that filled it showed that it had been opened and plundered long ago. As seen in Pl. 33, its plan, with small niches opening from the tomb chamber, was peculiar. The remaining four tombs all showed signs of having been searched in recent years and were therefore left unexamined. In conclusion I may remark, with regard to this group, that the general similarity of the observations and finds made in the tombs above described supports the conclusion that these burials belonged approximately to the same period. The evidence of the dated documents found in iii. 3 and iii. 4 permits us to attribute the others also tentatively to the first half of the eighth century.

Sepulchral inscription of A. D. 698, at Ast. iv. 1.

An inscribed clay slab having been found by one of our men near the surface of the trench leading to a tomb in a group situated to the east of ii. I had this tomb, iv. 1, cleared. Its small chamber (Pl. 33), which was almost completely filled with sand, held only one body, and this was too much battered for any observation of interest. The inscription in six lines of Chinese characters painted in red on bluish ground was successfully photographed (Pl. CXXVII). Its date, as read by Li Ssŭ-yeh and verified by Dr. Lionel Giles, corresponds to A. D. 698.[14b]

Finds in tomb Ast. v. 1.

The similar discovery of a large inscribed slab, Ast. v. 1. 07 (Pl. LXXIV), at the top end of an approach trench induced us to turn next to the enclosed group of tombs, v, towards the middle of the area. The tomb at which the inscribed slab was found faced south immediately towards the entrance of the enclosure (Pl. 31, 33). It contained one body badly damaged but still retaining portions of an outer silk shroud of indigo colour. This was painted near the head, as shown by the fragments recovered, Ast. v. 1. 02, with the bold representation of two faces, and farther down with curved bands of red and white which probably belonged to two intertwined serpentine bodies, such as may be seen in the hanging Ast. ix. 2. 054 (Pl. CIX) to be described below.[15] Of the silk face-cover,

[14a] Among the localities thus mentioned we find *Liu-ku*, the 'Valley of the Willows', and *Chin-sha* (here written *Chin-so*), stages on the direct route to Pei-t'ing discussed above, ii. p. 563 sq.; *T'ien-shan* (Toksun) and *Yin-shan* (Kumush) on the way to Kara-shahr (cf. *Serindia*, iii. p. 1177); *Ch'ih-t'ing*, the 'Red Station', on the road to Hāmi.

[14b] [See now Dr. L. Giles' translation, App. *I*. I. XIII.]

[15] See below, p. 666.

v. 1. 01, the central portion had completely decayed, but enough remains to show that the cover was made up of a piece of polychrome figured silk decorated with medallions of 'Sasanian' style, and of a plain silk frill. The body below the outer shroud of blue silk was certainly not wrapped in miscellaneous rags such as were found at Ast. iii. Yet evidence of the intention to use only valueless materials for the last dress of the dead was afforded by the shoes, v. 1. 03 (Pl. XCIII), made up of waste paper with Chinese writing on it; one shoe was found within the chamber, the other outside. We may, no doubt, account in the same way for the bands of painted paper, v. 1. 04. a, b, made up of several thicknesses of Chinese manuscript waste. They may have been intended as substitutes for a girdle or cross-belts.

Tomb inscription of A. D. 667.

The long inscription found outside this tomb Ast. v. 1. 07 (Pl. LXXIV), showing twenty lines of Chinese characters painted in red on a dark ground, has been fully translated and annotated by M. Maspero in Appendix *A*. It records an elaborate obituary eulogy of dame Chia 賈, the widow of Fan Yung-lung 范永隆,[15a] described as having held the rank of 'general of the guard' illegitimately, i.e. under the former dynasty before Kao-ch'ang was annexed to the Empire. The lady is described as being a native of Kao-ch'ang, in Hsi-chou 西州, and the daughter of a *chung-lang* 中郎 under the former régime. She is said to have died in the second year Ch'ien-fêng, corresponding to A. D. 667, at the age of seventy-five, and to have been buried by the side of her husband in the burial-ground to the north-west of the town. This location correctly corresponds to the bearing of the Astāna cemetery from Idikut-shahri. The burial in one tomb with the deceased husband has been fully illustrated by M. Maspero in a note to Appendix *A*, by references to Chinese ritual texts which mention this ancient custom. In this particular instance the inscriptional record of a common place of burial leads us to assume that the tomb must have originally contained a second body. This assumption seems to find support in the fact that one of the large paper shoes was found in clearing the trench, where it may have been left when the coffin with the second body was dragged outside to be searched in daylight. I must, however, point out that no other remains of this body were discovered there. I had no special reason to doubt that the place where the inscription was discovered had been correctly indicated, though neither Afrāz-gul nor myself was present at its discovery.

Textile finds in Ast. v. 2.

The tomb Ast. v. 2, to the west of v. 1, contained the remains of two bodies, one of which was still fairly preserved and recognizable as that of a woman. Both were wrapped in shrouds of plain white fabrics in cotton and silk, of which v. 2. 04 is a specimen. Underneath this the woman's head had a cover made up of a piece of polychrome figured silk, v. 2. 01 (Pl. LXXVIII, LXXXI), with a frilled border of plain white silk, v. 2. 03. The figured silk portion is very interesting by reason both of its design of 'Sasanian' type and of its weave, and fortunately very well preserved but for a missing part of the lower half. It shows two oval medallions one above the other, each holding two different pairs of confronting animals, and in the spandrels other pairs of confronting animals. Certain important points brought out by Mr. Andrews' detailed description in the List below will be noticed in our general survey of the Astāna textiles. In the mouth of the woman's body was found a silver coin too much decayed for exact identification, but from its size and design recognizable with certainty as a Sasanian piece. In conjunction with the inscriptional record from the adjoining tomb, Ast. v. 1, this coin contributes to prove that this group of tombs is approximately contemporaneous with the group Ast. i. In the hands of both corpses were Vajra-shaped pieces of wood like those described above from Ast. i. 6 which furnished the inscribed slab of A. D. 632. Two small rags of creamy silk suspended from pegs in the corners were all that remained of the hanging which was probably placed on the back wall of the tomb.

[15a] [Thus read by Dr. L. Giles on the original slab.]

## Section III.—INTACT AND OTHER BURIALS IN TOMBS OF GROUPS vi–x

Figured silks among body wrappings, Ast. vi. 1.

In order to test the general character of the tombs that were seen to be scattered at intervals over the northern portion of the area without any enclosure or distinct grouping, I next turned to the isolated tomb, Ast. vi. 1, marked by a mound somewhat above the usual height. The tomb chamber, 11 feet square, was reached at a depth of 15 feet and showed a conical roof cut into two superimposed squares after the fashion seen in Gandhāra and Kashmīr temples and illustrated by modern examples in Chitrāl, Mastūj, &c.[1] Its height was 7 feet. Here three bodies, all badly damaged, lay in a confused heap on pieces of coarse matting. The heads were all detached and the corpses decayed. But the bones were still wrapped in thick folds of mixed rags, exactly after the manner indicated by my finds in the grave-pits of the Lou-lan cemetery L.C. Amidst these rags a number of interesting textile remains were recovered. Apart from a mass of plain silk fabrics in different colours, vi. 1. 05, 07, we have here pieces of fine polychrome figured silks, vi. 02; 1. 03 (Pl. LXXVIII, LXXX), with striking designs of distinctly Chinese appearance; fragments of embroidery on silk damask, vi. 01; 1. 06 (Pl. XLV), plain silk, vi. 1. 09, or gauze, vi. 1. 04 (Pl. XLV), and of coloured gauzes, vi. 03 (Pl. LXXVII); patterned silks produced by knot-dyeing, vi. 1. 01–2 (Pl. LXXXVI). Torn pieces padded with cotton-wool and pieces of linings showed quite clearly that remains of old worn-out garments had been used promiscuously to wind round the bodies.

Sepulchral deposits in Ast. vi. 1.

The sepulchral deposits had also been completely disturbed by plunderers. Among them were found three coarsely worked wooden figures, one representing a woman, vi. 1. 010 (Pl. CIV), and the two others men, vi. 1. 011, 014 (Pl. CIV). The latter two are of interest because they show coats crossed over the breast in a distinctive fashion. Of other miscellaneous objects mention may be made here of two miniature pairs of shoes, vi. 1. 08, 021 (Pl. XCIII); of the miniature bow with arrows in a quiver, vi. 1. 023–5 (Pl. CIV), and the neatly made boardings of wood and matting, vi. 1. 012–13 (Pl. XCIV), which may have formed part of a box. Outside the entrance was found a piece from a wooden tablet inscribed with Chinese characters. [Among these Dr. Lionel Giles has recognized a date indicated by the Nien-hao *Shêng-p'ing* and apparently corresponding to A.D. 364.][2] The eastern wall of the tomb facing the entrance had been whitewashed and bore a dado about 2 feet high with panels painted somewhat crudely in bold outlines and gay colours. They showed from right to left a tree and floral tracery; two women and a man, kneeling after the fashion of donors in Ch'ien-fo-tung paintings; a rude cart drawn by several oxen and accompanied by the driver, and above them a kneeling camel. The style of the work resembles that seen in the paper painting, Ast. vi. 3. 05 (Pl. CVII).

Finds in tomb Ast. vi. 2.

The tomb vi. 2, situated about 350 yards to the north-east of vi. 1, contained a single body, of a man, with the head and arms detached. The body was wrapped in rags, with remains of buff and blue silk covering the whole. Among the miscellaneous rags was the fragment of blue resist-dyed silk, vi. 2. 04 (Pl. XXXVI), with two rectangular panels of figured silk sewn on. The designs shown by the latter, of a dragon and a winged lion, are unmistakably Chinese in style and execution, resembling those of figured silks from L.C., with which the warp-rib weave also associates these pieces. The whole, like Ast. vi. 3. 07 (Pl. LXXVIII) to be mentioned below, looks as if it had served as, or been made up to look like, a shoulder-piece with straps. The head, vi. 2. 06, which was fairly well preserved, had its hair done in a knot and showed remains of a scanty beard and moustache. The miscellaneous finds include the crudely carved wooden figure of a man,

[1] Cf. *Serindia*, i. p. 48, Fig. 16.

[2] [Shêng-p'ing was the last Nien-hao of Mu Ti, who died in 361.—Dr. L. Giles.]

vi. 2. 05 (Pl. CIV); a pair of imitation shoes of silk and waste paper, vi. 2. 08 (Pl. XCIII); and an imitation dagger-sheath, vi. 2. 09 (Pl. XCIV), similarly made up.

About 500 yards to the north-west of vi. 1 there lies a small group of tombs (see Pl. 31) close to the extreme edge of the cemetery area, and across a shallow depression in which overflow water from the stream at Sengim-aghiz had pushed down a thin sheet of ice at the time of our visit. Notwithstanding the vicinity of this moisture the contents of the tomb Ast. vi. 3, which was reached at a depth of some 16 feet, proved quite dry. The two bodies found in it had suffered much damage at the hands of plunderers, but were still recognizable as those of a man and a woman. Both bodies were wound in miscellaneous ragged fabrics, some of them, as the specimens vi. 3. 02, 08 show, remains of garments of plain silk, padded with silk wool and lined. Both had their feet cased in shoes, made of waste paper and covered outside with silk. Another pair of shoes, vi. 3. 013–14 (Pl. XCIII), wholly of paper, had, like the silk cuffs vi. 3. 019 and the paper hat vi. 3. 04, formed part of the sepulchral deposits. To these belonged also the wooden box vi. 3. 011 (Pl. XCIV), ornamented in lacquer; the wooden food tray vi. 3. 010 (Pl. XCI), with fish-tail handles and two Chinese characters on the reverse; the boat-shaped food bowl vi. 3. 017 (Pl. XCI), of a type common among the remains of the Han Limes, &c. Clearing of tomb Ast. vi. 3.

The textile remains from the bodies comprised *inter alia* the fragments of crimson silk vi. 3. 03 (Pl. LXXVIII), dyed with a dotted pattern by 'resist' process, and the fine silk muslin vi. 3. 09. The piece vi. 3. 07 (Pl. LXXVIII), resembling in character the 'shoulder-piece' vi. 2. 04 (Pl. XXXVI), is of special interest. It is made up of blue silk spotted white with an 'all-over' lozenge pattern and of two rectangular panels of embroidery attached to it on opposite sides. The design, similar on both, is worked in chain-stitch and is of a stylized floral type, manifestly Chinese. Decorated fabrics from Ast. vi. 3.

Finally special mention must be made of the paper painting vi. 3. 05 (Pl. CVII), done in bold outlines and roughly coloured, which was found at the entrance of the tomb. It shows in two registers a festive scene probably placed in another world. It includes, besides an important personage seated on a platform and in the act of taking a cup, attendants in various poses, musicians and a dancer, as well as the representation of an orchard and of a bullock-cart arriving. The whole, as pointed out by Mr. Andrews in his description below (p. 700), is a rendering of a scene often seen in the relievos of Han tombs. The costume worn by the figures clearly indicates that the artist followed models derived from that period. Painting on paper Ast. vi. 3. 05.

Ast. vi. 4, a fourth among these scattered tombs to the north that we examined, lay about 200 yards to the south-east of vi. 2. Its chamber, 8 feet square, had its conical roof cut into superimposed squares exactly after the manner of that described at vi. 1. Here too the smooth-surfaced walls of fine conglomerate had been whitewashed, and showed a painted dado three feet high with a succession of panels running round three sides of the chamber. These paintings were executed mainly in bold outlines with crude patches of colour here and there, in a style somewhat resembling the paper painting from vi. 3 (Pl. CVII). On each side of the entrance there was the representation of a lion-like monster. On the southern wall, to the right of the entrance, were displayed the figures of some horses, sheep, an ox and a camel, besides a gateway resembling in shape a Chinese memorial arch, and beyond this a woman apparently engaged in preparing food. The wall facing the entrance was occupied by a scene in which were seen a man seated on a carpet, his wife and her three attendants facing him, and three servants approaching from behind with offerings. The men's black head-dresses recalled the tailed caps seen in some of the Ch'ien-fo-tung paintings. The dado of the northern wall showed a tree and, beyond a blank panel, a bullock-cart below and a camel and some other animals above. I regret not to have had the means of reproducing these spirited if rough wall-paintings by photography or otherwise. Painted dado on wall of Ast. vi. 4.

Finds in tomb Ast. vi. 4.

The badly damaged remains of a single body were found in a corner, where they had been thrown in a heap by those who had previously made a thorough search of the tomb for valuables. This accounted for the broken condition of the articles, most of them of wood, here recovered. Among these are wooden figures, rudely carved and painted, of men and women, vi. 4. 03–8 (Pl. CIV); pieces of furniture models with legs ending in a lion's claw, vi. 4. 023, 027–8 (Pl. XCI); fragments of a model carriage, vi. 4. 010–11, 019–20, 022 (Pl. XCIV), &c. The circular wooden boxes, vi. 4. 024–5 (Pl. XCIV), deserve mention on account of their painted ornamentation. An article of particular interest is the excellently worked shoe of silk tapestry, vi. 4. 01 (Pl. XCIII), woven to shape. Its design consists of three bands, each composed of oblong panels showing a standing goose with wings extended, both panels and figures executed in counterchanging colours. Other bands with small Chinese characters are worked in at the toe.

Textile remains from tomb Ast. vii. 1, 2.

The tombs Ast. vii. 1, 2, which were next examined, lay to the east and west respectively of the ruined structure situated approximately between the two main portions of the Astāna cemetery (Pl. 31). In clearing the approach trench of vii. 1 two fragments of paper in Brāhmī script and probably Kuchean language were found. They were the only specimens of non-Chinese manuscript found at Astāna, and looked as if they had been torn from some documents. The tomb chamber contained three bodies; two of them, still in fair preservation, though thrown down from the platform, had shrouds made up of plain cotton and undyed silk; the third, which may have been stripped by the plunderers, lay completely broken up in a corner. The fragments of striped or painted silk vii. 1. 02, 03, 05 came from this body. The heads of the other two corpses retained face-covers made, as usual, of a piece of polychrome figured silk and a frill of plain silk around it. In vii. 1. 06 (Pl. LXXX) the figured silk shows a fine lozenge lattice pattern in a modification of 'Sasanian' design that is specially interesting on account of the heart-shapes decorating the border. Underneath this a pair of silver spectacles covered the eyes. The feet of this body were cased in shoes of lacquered canvas, with upturned toe and well made, as the description of vii. 1. 07 (Pl. XCIII) shows. The face-cover of the other body, vii. 1. 01 (Pl. LXXVII), was made of a piece of figured silk, also 'Sasanian' in design but coarsely woven. Some torn pieces of paper with Chinese writing on them were also found near the bodies.

Stucco figures from Ast. vii. 2.

The tomb vii. 2, situated about 200 yards to the north-west of the ruined structure, was one of those which had been previously searched by Mashik and in which he remembered having seen clay figures. It proved, as seen in the plan (Pl. 34), more elaborate in construction than any of those examined, comprising two tomb chambers with platforms and, besides a front passage, a square anteroom flanked by two additional rooms over 7 feet square. The conical roofs of the tomb chambers proper rose to the unusual height of 11 feet. These chambers were found empty but for badly broken remains of bodies, which seemed to have been wrapped in plain shrouds of cotton and silk. Fragments of Chinese paper documents, which probably came from their coffins, were lying in the outer tomb chamber and also in the adjoining anteroom. Most of these fragments, according to information kindly given by Dr. Lionel Giles, are from official reports. Some bear seal impressions in red, but none appear to show a definite date. The two side rooms flanking the latter once held a considerable number of clay figures of the same type as described from Ast. iii. 2, but almost all these figures had suffered much damage at the hands of those who successively searched this tomb for valuables. Among those still fit for removal may be mentioned the fragment of a finely modelled dragon, vii. 2. 01 (Pl. CIII); the head of a demon, of grotesque human type, vii. 2. 03 (Pl. CI), humorously treated; several horses, vii. 2. 05–7 (Pl. C), accoutred exactly after the previously described fashion; figures of riders, one of which, vii. 2. 011 (Pl. CII), is shown as playing on a pipe. The roped bundle represented in vii. 2. 08 (Pl. CI) had evidently

been detached from one of the completely smashed horses. A large figure of a single-humped camel, too much broken to be moved, showed by its bad modelling that the maker was unfamiliar with this kind of camel. The model of a squared board, vii. 2. 014 (Pl. XCIV), seems to indicate by black and white dots that it was intended for playing some game. The wooden model of a baton-like weapon, vii. 2. 013 (Pl. CII), shows on its painted sheath a spirited hunting scene, in which the rider of a galloping horse turns round to discharge an arrow at a leopard bounding in pursuit.

Clay figure of native from Ast. viii. 1.

Proceeding north of vii. 1 we next opened the tomb viii. 1 (Pl. 34), within a small enclosure. The approach trench to it showed no sign of recent digging, though the tomb had obviously been searched at some previous time. A curious find was made in a shallow niche on the western wall of the trench, such as usually appears to have been cut to hold a brick with the sepulchral inscription. It was the painted clay figure viii. 1. 03 (Pl. CI), in fair preservation, showing a man with a round face of unmistakably non-Mongolian type. The straight-set eyes and narrow-bridged aquiline nose make it quite certain that a member of a non-Chinese race is intended. The long close-fitting coat and the round black fur cap point to the same conclusion. The technique of the figure agrees so closely with that of the clay figures found in other Astāna tombs that its approximately contemporary origin can scarcely be doubted, even if it had been brought here from somewhere else. The two bodies found within the small tomb chamber were wrapped in shrouds of a plain white fabric. The head of one retained a silk covering of thin muslin, which, though much decayed, still showed a man's face painted on one side, as seen in the fragments viii. 1. 02. Here were also found the large pottery jar, viii. 1. 05 (Pl. XC), ornamented with painted designs of spots and flower petals in the style of the pottery of Ast. i, and the smaller decorated jar, viii. 1. 04. The paint on the former had been applied after the handle was broken off, which suggests that this pottery was specially adapted for sepulchral deposit after having been used for ordinary purposes.

Tomb ix. 1 with inscriptions of A. D. 652, 667.

Two adjoining enclosures close by to the north, Ast. ix (Pl. 34), were found to comprise several tombs which had escaped the attention of recent searchers and yielded interesting discoveries. The one first opened, ix. 1, contained two bodies (Fig. 324) still sufficiently well preserved to be brought up without difficulty to daylight. They were clearly recognizable as those of a man and woman, both clothed in shrouds of plain cotton fabrics, with the heads wrapped in silk. On the silk with which the man's head was covered there were painted two heads facing one another, ix. 1. 04–5, in the manner observed in Ast. i. 6. 02 and v. 1. 02 but on a scale somewhat larger. The rather hasty painting is accounted for by the conditions under which it had to be done. Here, too, it was noted that the bodies had not been laid out but left just as death rigor had overtaken them. At the outer end of the trench two clay slabs were found *in situ*, showing Chinese inscriptions painted red on black ground (for Ast. ix. 1. 03, see Pl. LXXV). They bear dates corresponding to A. D. 652 and 667. [For translations by Dr. L. Giles, see App. *I*, VII, IX.]

Tomb Ast. ix. 2 found unopened.

Two inscribed bricks were found at the southern end of the trench leading down to the tomb ix. 2, and the dates A. D. 667 and 689, and other information they furnish, as shown by the translations which Dr. Giles has kindly supplied,[3] are of all the more interest because to our surprise and satisfaction this tomb proved to have remained unopened and its contents were quite intact. Yet the trench showed signs of having been dug at, apparently a considerable time ago; but this attempt had been abandoned for some reason before the tomb entrance was reached. We found it completely walled up with rough brickwork and the sloping clay wall above this untouched. Our entrance was effected by cutting through this clay just above the gate which gave direct access to the tomb chamber. Thus more light, and also fresh air, were secured for the examination of its contents. But the atmosphere within was by no means oppressive even when the small chamber,

[3] See below, Appendix *I*, VIII, XII.

only about 10 feet by 9, was first entered. Probably the corpses had been dried up long before the solid wood of the coffins shrank and permitted the air in the tomb to be tainted.

Coffins found in Ast. ix. 2.

As seen in Pl. 34, of the three coffins found in the tomb two occupied a platform about 4 feet 6 inches high, towards the back wall of the chamber. The third stood on the ground in front of the platform. The coffin in the middle was turned with its broader or head end to the west. It at first impressed us, even hardened Mashik, our 'ghōrchi', by its extraordinary length, only a few inches short of 8 feet; the others measured close on 6 feet. Behind the head of the middle coffin there was placed against the western wall a low pedestal made of thin carved boards painted red (Fig. 322), showing in the shape of its framework a very close resemblance to the models of such pedestals found in Ast. iii. 4.[4] Though very rickety owing to loosened joints, it still carried intact an assortment of wooden food bowls, ix. 2. 028–38 (Pl. XCI), decorated in the manner of those found in the tombs of Ast. i. They contained grapes, plums, pieces of meat, &c., all shrivelled, but otherwise in perfect preservation. On a low platform about 2 feet wide built against the western wall and at the head end of the third coffin, there stood some pottery jars, dishes and saucers, ix. 2. 039–42 (Pl. XC), 052, all holding remains of some oily substance or food. On this were also lying figurines made of paste or dough, ix. 2. 024, 47–50 (Pl. LXXXIX), together with the small model of a cart ix. 2. 06 (Pl. XCIV); and roughly circular pieces cut from bark, ix. 2. 044–6, perhaps meant to represent 'cash'. Below, the platform was strewed with grains of wheat. In the north-western corner of the chamber there stood the turned wooden urn ix. 2. 027 (Pl. XCI), painted and decorated with white spots, and inside this was found the miniature wooden duck ix. 2. 043 (Pl. CIV). Scarcely any dust covered these objects or the coffins, and even what dust there was may have been deposited only while the gate was being bricked up or our entrance effected. But the most striking thing among the sepulchral deposits was the hanging ix. 2. 054 (Pl. CIX), still in its place on the back wall of the chamber, showing on ivory-coloured silk the coarsely painted figures of the legendary sovereign Fu-hsi and his consort with their lower serpentine bodies entwined.

Coffin cover of A.D. 706.

The coffin *a* nearest to the entrance was painted outside a reddish brown and covered with a plain sheet of cotton fabric resembling the present-day 'Khām', ix. 2. a. 07 (Pl. CXXVII), which reached down almost to the floor. One edge bears impressions of several stamps in red ink and a column of Chinese writing which still awaits interpretation. The seals may well have served a similar purpose to those affixed nowadays by Chinese tax collectors to 'Khām' fabrics upon which octroi duty has been paid when brought to the market. [This assumption has been confirmed by the reading which Dr. L. Giles has kindly supplied of the written characters; see App. *I*. The inscription records the receipt of a roll of cloth from a taxpayer at Wu-chou, Lan-ch'i hsien, Jui-shan hsiang, Ts'ung-shan li on a day of the 8th moon of the 2nd year of Shên-lung (A.D. 706).

Both *Lan-ch'i hsien* and *Hsin-an hsien*, mentioned in the corresponding inscription, dated A.D. 684–5 (see App. *I*), of the cotton sheet from coffin ix. 2. b (Pl. CXXVII), are localities in the province of Chekiang. The fact of plain cotton materials having been brought to Turfān from such a great distance is of distinct antiquarian interest; so is also the considerable interval of time between the date recorded on ix. 2. a. 07 and the year A.D. 689 named in the inscribed slab Ast. ix. 2 (see App. *I*, XII) as the date when Fan Yen-shih, the man found in coffin *b* of this tomb, died.]

Contents of coffin Ast. ix. 2. a.

The top of the coffin could be lifted with ease and disclosed the body, manifestly of a woman, seen in Fig. 322. Its knees were slightly bent. There was a shroud of white 'Khām' covering an assortment of much-decayed fabrics, evidently from old garments from which some of the silk

[4] See above, ii. p. 657, and the examples in the Shōsōin there referred to.

pieces, plain or in damask, described under ix. 2. 08–9, 015–16 (Pl. XXXVI), were recovered. Below the feet, cased in plain and badly rotten canvas slippers, there lay fragments of paper, ix. 2. 018, mostly decayed, bearing Chinese writing, evidently waste inserted to fill up the empty space. Under the silk wrapped round the head was found the face-cover ix. 2. 01 (Pl. LXXIX), made up of two pieces of figured silk, both of 'Sasanian' type and recovered only in fragments. Against the right proper of the head there rested the circular toilet box of lacquered wood ix. 2. 03 (Pl. LXXXIX), well preserved and containing a miscellaneous collection of small articles in similarly perfect condition. Among these are a small silver mirror showing an embossed lotus design at the back; a fine wooden comb; cosmetics or medicaments wrapped in papers, including a small piece of felt with rouge. At the bottom lay folded up a sheet with Chinese writing and seals, evidently a document. Near the head, which was supported from the left proper by a cushion covered with white 'Khām' and containing chaff, there were found the spindle ix. 2. a. 09 (Pl. XCIV) and the wooden measure ix. 2. a. 08 (Pl. LXXXIX), with divisions which, though not quite uniform, seem to mark Chinese inches. Farther down by the side lay the small bags ix. 2. 012–13 (Pl. LXXXII), made of silk decorated by the 'resist' method, and a mass of small rolls of cuttings from diverse silks and other fabrics, ix. 2. 021.

Man's body in middle coffin ix. 2. b.

The big coffin *b* in the middle still held strongly together, though, as in the other two, only dowels and wooden pegs had been used in joining the heavy boards. It was covered outside with a sheet of muslin-like silk, ix. 2. b. 012, painted with the same figures of Fu-hsi and his consort, human above the waist and ending in entwined serpentine bodies below, which appear on the hanging previously mentioned. The lower portion of this cover had become very brittle and decayed, and a fringe of dark red silk on its edges broke away practically into dust when touched. Underneath this painted cover lay a plain sheet of creamy silk, and this again rested on a sheet of 'Khām', ix. 2. b. 011, bearing, like that from ix. 2. a, a Chinese inscription and seal stamps [see App. *I*]. The coffin was tied round with rough cords in three places. The body within (Fig. 323) did not prove quite of that gigantic stature which the large size of the coffin had suggested. It measured 6 feet 1 inch with the legs slightly bent in death agony. It was that of an elderly man, with scanty beard of yellowish grey and one front tooth missing, and lay between a rough matting. Cushions of coarse cotton material stuffed with millet chaff had been placed so as to fill at least partially the empty spaces left at head and feet. The latter were stuck in black felt mocassins, resembling the present 'Paipaks', and badly decayed.

Dressing of corpse ix. 2. b.

The whole body was wrapped in a shroud of plain silk which had been probably white but had darkened into light brown in most places. Beneath this, the body from the neck downwards was covered with 'Khām', which was placed over rags of miscellaneous fabrics, including some remains of garments in plain coloured silk, as seen in the specimen ix. 2. 020. Among them was also found the curious fragment of a patchwork, ix. 2. 019 (Pl. LXXVII), with small squares cut from a figured silk of 'Sasanian' style. Underneath the silk shroud the head wore a face-cover of polychrome figured silk, ix. 2. 017, which was much decayed and could be removed only in fragments These show that the design was 'Sasanian' in style and not unlike that found in the fine 'boar's head' piece Ast. i. 5. 03 (Pl. LXXVI). The pair of silver 'spectacles' ix. 2. b. 09 had in this case been put over, instead of as elsewhere below the face-cover. No coin could be seen in the open mouth of the dead. By the side of the head lay the small round basket of neatly woven cane ix. 2. b. 08 (Pl. LXXXIX), and placed in it a sandal-wood comb, two folded pieces of fine silk, and six T'ang coins, with the legend, *K'ai-yüan*, showing no signs of wear. Near the head lay also the crown-shaped paper hat ix. 2. 023 (Pl. XCIII), decorated with bands of yellow silk damask and gilt ornaments. It closely resembles the headgear seen in the painting Ast. vi. 3. 05.

The hands of the dead, as in all other bodies found at Ast. ix, were by tight wrapping made to close round rough Vajra-shaped pieces of wood.[5]

Woman's body in coffin ix. 2. c.

The third coffin, *c*, nearest to the back wall, was covered with a sheet of 'Khām', and was like that of *b* without paint. The body of a woman which lay in it was dressed in a shroud of cotton. Over this was extended a garment of silk, ix. 2. 025 (Pl. LXXVII), now discoloured, ornamented with a broad band of striped silk recalling the patterns common in modern silks from Margilān. Below this there lay a small Chinese manuscript roll, Ast. ix. 2. 053, tucked into the fold of the left arm. This, according to information kindly communicated by Dr. Lionel Giles, contains a record with a date corresponding to the 8th December, 667, to the effect that several Sūtras were copied and recited by monks on behalf of the Lady Tung, whose name in religion was Chên-ying, wife of the official Fan Yen-shih of Kao-ch'ang. A face-cover made of figured polychrome silk, ix. 2. 022 (Pl. LXXVIII), showing a 'Sasanian' design, stuck to the shrivelled skin and could only in part be removed. Of a pair of 'spectacles' placed over it the metal portion had completely decayed, while fragments ix. 2. 09 of their silk damask covering survived along the edges. To the right of the head were found a number of glass beads, ix. 2. 05 (Pl. LXXXIX), once probably strung; small corroded fragments of iron, ix. 2. 07, which probably belonged to a pair of scissors, and a number of thin bronze plates, ix. 2. 04 (Pl. LXXXIX), of varying shapes and evidently parts of a pendant.

Hanging of painted silk.

While this coffin *c* was being opened, the silk hanging ix. 2. 054 (Pl. CIX), previously mentioned, fell down from the rough wooden pegs by which it was fastened to the back wall, merely through the movement of the air caused by that operation.[6] It fortunately fell on the 'Khām' cover of the coffin and hence suffered damage only in the bottom portion. The two figures of Fu-hsi and his consort shown in embrace and with entwined serpentine bodies below are fully described by Mr. Andrews in the List below. For their representation in the tomb Sinologist scholarship will be able to account. Here it may suffice to draw attention to the mason's emblems in the hands of the two figures and the constellations marked around them. I may also note that the width of the silk used, 17½ inches, differs both from that ascertained by me to have been usual in silk textiles of Han and Chin times and that prevalent in the silk banners, &c., recovered at Ch'ien-fo-tung;[7] this possibly indicates non-Chinese manufacture.

Sepulchral inscription of Ast. ix. 2.

The fortunate circumstance that this tomb had remained absolutely intact since the last of its inmates was laid to rest may claim all the more importance, because one of the inscribed slabs of burnt clay [for a translation of the inscription see Dr. Giles's App. *I*, under No. XII] supplies us with some exact details about the dead man buried here, and in particular with the date of his decease, A.D. 689. [The second inscribed brick, also translated by Dr. Giles in App. *I*, VIII, records the burial of Chên-ying, Fan Yen-shih's wife, who died A.D. 667. It is her body which was found in coffin *c* with the document relating to the Sūtras which had been copied on her behalf; see above.] The special interest of these inscriptions lies in the fact that they allow us to connect certain burial customs widely represented among these tombs of Astāna with a definite period and with a local population of undoubtedly Chinese origin.

Finds in tomb Ast. ix. 3.

The tomb ix. 3, next opened in the same enclosure as ix. 1, contained little besides two badly battered bodies with heads severed. But we recovered from them two very interesting pieces of figured silk. One, ix. 3. 02 (Pl. LXXX), which probably had served as a large face-cover but was

[5] For a specimen, Ast. i. 6. 05, see above, p. 649.

[6] That the hanging had remained for twelve centuries on the wall in spite of the inadequate fastening and of its size, originally about 7 feet in length and 3½ feet across at the top, suggests that the Turfān region cannot have experienced any serious earthquakes during this period.

[7] Cf. *Serindia*, i. pp. 373, 374 note, 537 note; ii. pp. 701 sq., 991, 1005, &c.

found detached in the sand covering the bodies, is made up of pieces of the same stuff, showing in characteristic ' Sasanian ' design medallions with two pairs of confronting winged horses in different poses. The other fragment of a polychrome figured silk, ix. 3. 03 (Pl. LXXVIII), is decorated in bands. Of these, two are unmistakably Chinese in design, with motifs of confronting phoenixes and geometrical patterns, which show a connexion with early examples from the Tun-huang Limes and Ch'ien-fo-tung, while below is seen a band with stiff floral motifs treated in the ' Sasanian ' fashion. We have here clearly a specimen of the figured stuffs produced in China under the influence of Western decorated textiles during T'ang times, and probably earlier also. An inscribed brick brought to me before excavation at this group of tombs started was said to have been found in the trench leading to Ast. ix. 3. Its date from the copy taken has been read by Dr. L. Giles as 625 [see App. *I*, II]. Among the remains of Chinese paper documents which were also recovered here some seem to relate to monastic affairs ; none are dated.

Tombs Ast. ix. 4 and 5.

The tombs ix. 4, 5 each yielded only an inscribed clay slab, showing dates read at the time as corresponding to A. D. 648 and 682 respectively. [For translations by Dr. L. Giles of the photographs taken of these inscriptions, see App. *I*, VI, XI ; also Pl. CXXVII.] In the small tomb ix. 6, the last examined of this group, sand completely covered the badly damaged remains of bodies. Here were found the finely worked lid of a cane basket, ix. 6. 01 (Pl. XCIII) ; the small grass-stuffed canvas cushion ix. 6. 07 (Pl. C), once no doubt lying in a coffin ; and the pottery jar ix. 6. 08 (Pl. XC), decorated in the fashion of the Ast. i pieces. The pieces of Chinese writing found in a paper shoe contain dates in months and days only.

Clay figures and silk fabrics from Ast. x. 1.

The last tomb examined at the site was x. 1, situated in a small enclosure near the northern edge of the cemetery area (Pl. 31). It was, as the plan (Pl. 34) shows, of a somewhat elaborate construction, having two anterooms and oval niches opening on either side of the inner one. Mashik had re-searched this tomb after it had already been plundered at an earlier period, and remembered to have found in it a number of clay figures. These proved to be almost all badly broken, no doubt intentionally ; but as they were of exactly the same type as those discovered in Ast. iii. 2 and vii. 2, only less carefully modelled, the loss was not great. The pieces removed by us comprise the large grotesque head of a demon x. 1. 09 (Pl. CI), and two figures of standing women, x. 1. 010–11 (Pl. CIII), of which the painted dress is of some interest. The two battered bodies lying below the platform of the tomb chamber had been wrapped in rags of miscellaneous garments, and among these a number of figured silk pieces were recovered, besides remains of other silk fabrics. Among the latter the fine gauze x. 1. 02 (Pl. XXXVI), and the large and well-preserved piece of printed silk x. 1. 04 (Pl. LXXXII), with motifs mainly floral, may be mentioned. Floral patterns prevail also among the figured silks, both polychrome and damask, x. 1. 05–7 (Pl. XXXVI, LXXVIII, LXXIX, LXXXIII, LXXXV). The collection of fragments of elaborately striped silk fabrics, x. 1. 08, closely recall designs represented among the patchwork pieces from the ' Thousand Buddhas ' of Tun-huang.[8]

## Section IV.—GENERAL OBSERVATIONS ON THE ASTĀNA BURIALS AND THEIR TEXTILES

Dates of burials.

Before I explain why I was obliged to confine my work at the Astāna cemeteries to the tombs above described, it will be convenient at this point to review briefly the evidence afforded by them as regards the general character of the burials in them and the burial customs illustrated. From the sepulchral inscriptions translated by M. Maspero [and Dr. Lionel Giles] it is seen that the dates recorded by those inscribed slabs which were found *in situ* extend from A. D. 608 to A. D. 698,

[8] See e. g. *Serindia*, iv. Pl. CVII.

while another inscription of local provenance, Ast. 09 (Pl. LXXV), brought to me by villagers of Astāna, shows the date of A. D. 571.[1] These epigraphic records, combined with the dates which, as shown above, are found among the documents recovered from the tombs, establish it beyond doubt that the period to which the tombs of the Astāna cemeteries in the main belong extends from the latter half of the sixth century to the first half of the eighth.

Chinese influence at Turfān

This conclusion is fully supported by the data derived from Chinese sepulchral inscriptions and documents collected by M. Tachibana from tombs of Astāna and the previously mentioned cemetery to the north of Idikut-shahri; these data have been rendered accessible by M. Maspero's review of the Japanese publication in which they appeared.[2] M. Maspero in his lucid analysis has justly laid stress on the fact that these records conclusively prove the predominant influence that Chinese civilization must have exercised at Turfān during the period above indicated. This influence was well established long before the territory was reduced to a district of the Chinese Empire and was necessarily much strengthened during the time of effective Chinese administration down to the close of the eighth century.

Chinese burial customs observed.

The inscriptions make it certain that the bodies in the tombs examined were those of persons either Chinese by origin or else of natives of Kao-ch'ang who, whatever their descent, were entirely under the sway of Chinese civilization. It is sufficient to point to the Chinese names of the dead, the Chinese official titles borne by them, and the very language and contents of the funerary records. This conclusion is completely borne out by what our examination of the tombs has revealed as to the manner of their burial. It does not fall within either my task or my competence to attempt to prove in detail that all the points observed in connexion with these burials at Astāna conform to Chinese rules and usages regarding the disposal of the dead, as Chinese literature shows them to have been at the period in question. It must suffice to state that most of the essential facts summarized below from our preceding description of the tombs and bodies examined can be accounted for even by those who are not Sinologists from the abundant materials that the late Professor J. J. M. De Groot has rendered available in the first two volumes of his great publication dealing with the 'Disposal of the Dead'.[3]

Variations in burial customs.

But this exhaustive disquisition on what has always been a most important part of Chinese religious and customary lore also shows that, notwithstanding the persistence of the fundamental ideas underlying, the burial practices have been subject to considerable variations at different times and in different localities. Hence there is reason to hope that, apart from the interest attaching to particular finds, the observations made in the tombs of Astāna will prove useful to research as illustrating changes of custom of which adequate knowledge cannot be obtained merely from literary records or from modern practice.

Arrangement of tombs.

In the introductory remarks of this chapter I have already indicated the essential features uniformly noted in the arrangement of all the tombs in the cemeteries of Astāna. I mean the approach trench, the tomb chamber carved in the clay of the 'Sai', the low pyramidal mound raised above the tomb chamber, and the grouping of the tombs in rectangular graveyards marked by low embankments of gravel. The uniformity observed in these structural features goes some way to prove that the burials in different portions of the great cemetery area probably took place during approximately the same period as that indicated by the range of dates recorded in inscriptions and documents. In a number of tombs the regular plan of tomb chamber and approach trench divided by a narrow walled-up entrance was enlarged by the addition of one or two anterooms;

[1] See below, M. Maspero's Appendix *A*.

[2] Cf. M. Maspero's paper in *B.E.F.E.O.* xv. pp. 57 sqq., on *Seiki kōko zufu*, Tōkyo, 1915 (2 vols. of plates); for the cemetery NE. of Idikut-shahri, cf. above, p. 642.

[3] See De Groot, *The Religious System of China*, Book I, pp. 1–473, 659–806.

these were usually provided with small niches at the sides for the accommodation of funerary images and the like.[4] Considering that the same enclosures also hold tombs of the simpler type, there is no reason to attach chronological significance to this variation in the plan. In three of the tombs examined, Ast. ii. 2; vi. 1, 4, the walls of the chamber bore roughly executed paintings representing possessions and pleasures such as the soul of the dead there buried was obviously desired to enjoy in a transmundane existence. In other tombs the back wall of the chamber was occupied by a hanging of painted silk. In the tombs i. 2, 6 and v. 2, which had been disturbed and consequently left open to the access of air for some time, only the scantiest indications of such hangings had survived. In ix. 2, however, the only intact tomb, the hanging was still in its place and shows, as now recovered, Ast. ix. 2. 054 (Pl. CIX), the figures of Fu-hsi and his consort Nü-wa in embrace, with their lower serpentine bodies entwined.[5]

Bodies placed in coffins.

There is every reason to assume that in all tombs the dead were originally placed within coffins, in conformity with those Chinese notions concerning the dwelling proper for the body which appear to have been strongly held throughout the historical period.[6] But only in the undisturbed tomb ix. 2 were the coffins of its three occupants found as originally deposited. In a few others scanty remains of coffins had been left behind by the plunderers; in all the rest they had taken care to carry away all the wood of the coffins, so useful as fuel in a tract where timber is very scarce. The coffins of ix. 2 were of simple construction, fastened only with wooden nails,[7] and had sheets of silk and cotton canvas spread over them, supplemented in the case of the principal burial by a painted silk showing Fu-hsi and Nü-wa. Before recording observations concerning the treatment of the bodies as buried it is important to note that in all the tombs, with one or two exceptions where the contents had suffered very badly, two or three bodies were found. This is fully explained by the fact, referred to in the funerary inscription of Ast. v. 1 and discussed by M. Maspero in a special note, that it was a ritual obligation to bury the wife in the same tomb as the husband.[8] In ix. 2 the two smaller coffins undoubtedly housed women; in the other instances also one, or where three bodies were found in the same tomb two of them, had the appearance of being those of females.

Shrouding of bodies.

Turning to the bodies themselves, it is noteworthy that in several cases where they were fairly well preserved, such as in i. 6; ix. 1; ix. 2. a, b, there was clear evidence that the dead had not been laid out, the legs being left just as they were when death rigor occurred. The hands of most of these bodies which were not too badly damaged held Vajra-shaped pieces of wood, which had been originally covered with torn fabrics.[9] Observations of special interest relate to the dressing of the dead. As outside coverings shrouds of plain silk and cotton were placed over the bodies; these were found on practically all the corpses that had not undergone too much stripping or battering.[10] In these cases it was observed that the outer shroud of silk had been painted, where it covered the front portion of the head, with the representation of two faces in profile, on a scale less than life-size.[11] In respect of the clothing of the dead beneath these shrouds two different types of treatment can clearly be distinguished. The more frequent offers a special archaeological interest. It consisted of wrapping around the body rag-like pieces of miscellaneous fabrics, mostly silks, whether plain, coloured or figured, and cottons; these in some cases could still be clearly

[4] See tombs Ast. i. 7, 8; iii. 1, 2, 4–5; vii. 2; x. 1.

[5] See also Maspero, *B.E.F.E.O.*, xv. pp. 60 sq., where the recurrence of the same figures similarly posed in relievos of Han tombs is noted.

[6] Cf. De Groot, *Religious System*, i. pp. 280 sqq.

[7] See *ibid.*, i. pp. 285 sqq.

[8] Cf. M. Maspero's remarks in App. *A*; also De Groot, *loc. cit.*, ii. pp. 800 sqq.

[9] See above, ii. pp. 649, 666, concerning i. 6; v. 2; ix. 1, 2.

[10] See notes above, ii. pp. 645 sq., 651, 658, 662 sq., 665 sq., on i. 1, 3; ii. 2; v. 1; vii. 1, 2; viii. 1; ix. 1, 2.

[11] See above, ii. pp. 648 sq., 658, 663 for i. 5, 6; v. 1; viii. 7; ix. 1. The case of v. 1 seems to suggest that these faces might have been meant to belong to representations of Fu-hsi and Nü-wa.

recognized as taken from old worn garments.[12] Where the other method was followed, the wrapping was made up of plain cotton or silk garments as seen in v. 1 and ix. 1. Whether these had been worn before or were specially prepared grave-clothes, could not be decided owing to the decayed condition of the bodies and their coverings.

Rags of old clothes used for wrapping.

It is to the first type of wrapping that we owe a good portion of the mass of interesting textile specimens to be surveyed below. It has also conclusively confirmed the explanation given in an earlier chapter of the corresponding and in some ways even more interesting textile relics recovered from the grave-pits of the Lou-lan cemetery L.C.[13] I am unable at present to refer to any Chinese authority mentioning this custom of dressing the dead in old rags. But it seems likely that it may have arisen from that strong reaction against waste of wealth in disposing of the dead which appears to have developed its full strength under the influence of the philosopher Mo-tzŭ (fifth to fourth century B.C.).[14] The casing of the feet of the dead in shoes of paper, as seen in v. 1; vi. 3, and the use of paper for sham girdles (v. 1) and hats (vi. 3; ix. 2), were fully in keeping with this practice.

Face-covers of figured silk.

With regard to the head of the dead the bodies examined furnished evidence of a peculiar custom of distinct antiquarian interest. I refer to the practice of protecting the face with a separate cover, always consisting of an oval or roughly circular piece from a polychrome figured silk, edged with a frill of plain coloured silk. The practice, though by no means general, is attested in so many tombs scattered over the whole of the cemetery area,[15] that its wide prevalence, at least locally, during the period to which these tombs belong cannot be subject to doubt. The interesting fact that the figured silks used for these face-covers are almost without exception cut from stuffs worked in 'Sasanian' style, and hence of West Asiatic origin, will be noticed below in the review of Astāna textiles.[16]

Metal spectacles placed over eyes.

Another curious custom, evidently closely connected with the use of these face-covers, was that of placing 'spectacles' over the eyes of the dead, cut out of a thin plate of metal, apparently always silver, lined with silk and having small perforations where they would cover the eyeballs.[17] Such 'spectacles' were found associated with the majority of face-covers, but not always. Usually they were put below the face-cover; but in ix. 2. c they were found above it. The definite interpretation of this strange provision for the dead has yet to be discovered. That it could scarcely have been intended merely for the protection of the eyes is suggested by the fact that in the case of i. 3. b such protection was already provided in the shape of two Sasanian silver coins placed over the eyes, while in a few other cases small circular pieces of bark had been used for the same purpose.

Coins placed in mouths of dead.

It is, perhaps, of some significance that several of the bodies provided with spectacles have furnished us with illustrations of another interesting burial custom, that of placing coins of precious metal in the mouth of the dead. In i. 3. a, 5. a, 6. b these were gold pieces, imitations of an issue of Justinian I (A. D. 527–65); in v. 2 a Sasanian silver coin. The custom of putting gold and other precious articles in the mouth of the dead goes far back into Chinese antiquity. According to Professor De Groot it is connected with a belief that such substances protect the body against decay.[18] But the analogy offered by the coined pieces of gold and silver in the mouths of the dead of Astāna to the obolus for Charon is too striking to be left unnoticed. In fact, a Buddhist story extracted by M. Chavannes from the Chinese Tripiṭaka, to which that great departed scholar drew my attention in 1916, clearly supports this analogy; for it directly mentions a piece of gold

[12] See above, ii. pp. 649 sq., 652 sqq., 660 sqq., 665 sqq. for evidence of such use of old garments in i. 7, 8; ii. 1; iii. 2–4; vi. 1–3; vii. 1; ix. 2; x. 1.

[13] Cf. above, i. pp. 231 sqq.

[14] See De Groot, *Religious System*, ii. pp. 659 sqq.; for records of actual instances of such economy practised in high places during the third century A.D. and later, cf. *ibid.*, ii. pp. 692 sqq.

[15] See above, ii. pp. 646 sqq., 659, 662, 665 sqq. for i. 1, 3, 5–6; v. 1, 2; vii. 1; ix. 2–3.

[16] Cf. below, ii. pp. 676 sqq.

[17] See above, ii. pp. 647 sqq., 662, 665 sq. for i. 3. a, b, 5. a; i. 6. b; vii. 1; ix. 2. b, c.

[18] Cf. De Groot, *loc. cit.*, i. pp. 274 sqq.

having been put into the mouth of a dead man with the object 'that by the means of this present he may be able to gain the good graces of the king of the Great Mountain (the king of hells)'.[19]

We may reasonably attribute a similar purpose to the coins found in several of the Astāna tombs, whether copper 'cash' of the *Wu-shu* type in i. 3, 6 and T'ang issues with the *K'ai-yüan* legend in ix. 2. b, or else substitutes. Among the latter the small silver discs from i. 3, resembling Chinese copper coins with their square holes, are curious as possibly indications of a desire to replace the current coinage of the Empire by something more valuable. On the other hand the strings of paper 'cash' from iii. 4 and the small circular pieces of bark from ix. 2 take us straight to the paper money still used in present-day Chinese worship of the Manes and attested by literary evidence since the third and fourth centuries A. D.[20] There is reason to believe that the principle of avoiding waste in funeral rites, which prompted the substitution of such counterfeits, did not altogether prevent the deposit, on occasion, of articles of some value with the dead of Kao-ch'ang. Small ornaments of silver and gold were, it is true, found by us only in i. 3. But the systematic plundering of the tombs, which frequently included a minute examination of the bodies, would scarcely have been so extensive had it not occasionally met with rewards of some intrinsic value. Coins or substitutes placed with the dead.

The undisturbed condition of ix. 2 affords us a welcome indication of the objects that probably formed the usual deposits within the coffins in these Astāna tombs. We have seen that in the case of Fan Yen-shih, ix. 2. b, they were limited to a small basket with a comb, copper coins and some small pieces of silk; also a paper hat marking rank. Cushions of plain cotton fabrics and waste papers served merely to fill up empty space. The matting placed under the body, and found with other bodies also, may possibly have been first used in some funeral rite. In the case of the ladies buried in the same tomb the articles placed within the coffins comprised small articles of personal use, such as a mirror, comb, scissors, glass beads, cosmetics, &c. Similar petty objects were found also in i. 5, 8. The small lacquered boxes and baskets found in iii. 2; vi. 3, 4; ix. 6 are likely to have held objects such as were placed in the coffins. The model garments of paper or silk, such as the shoes, cuffs, hat, &c., recovered in ii. 1, vi. 1–3, together with the models of arms made of paper or wood, from vi. 2, vii. 2, were all meant to symbolize the dead's personal outfit for another life. They had probably also been deposited within the coffins. That writings, apart from waste papers, had been placed with the dead there is evidence only in the Chinese roll found in the fold of the left arm of ix. 2. c. Whether the fine silk painting to which the fragments found in iii. 4 belonged, and the paper paintings ii. 1, vi. 3 with scenes showing the kind of after life desired for the deceased, were placed within coffins or outside is uncertain. Objects placed within coffins.

The custom of providing the dead with food for use in their new abode is well known to have prevailed in China from very early times, but appears to have given way later to sacrificial offerings upon the tomb.[21] It is therefore of special interest to find evidence of the ancient practice throughout the Astāna tombs. The manner of depositing these provisions is best illustrated by the arrangements which were observed intact in ix. 2. Here pottery as well as wooden vessels of different shapes painted in a peculiar fashion were found placed near the head ends of the coffins, partly on a low wooden pedestal and partly on a separate little platform. We came upon similar jars, bowls, cups, &c., in i. 1, 2, 4; ii. 2; iii. 2; viii. 1, &c. The wooden vessels were in almost all cases shallow, thus showing clearly that they were made specially for funeral purposes. But the lacquered trays from ii. 2, vi. 3, and that marked Ast. 01 (Pl. XCI), as well as the wooden food bowls of antique shape from ii. 2, vi. 3, had obviously been in ordinary use before deposit. Fragments of a wooden pedestal similar to that in ix. 2 were found also in iii. 4. Remains of food thus placed outside the coffins Provision of food for dead.

[19] See Chavannes, *Cinq cents contes et apologues extraits du Tripiṭaka chinois*, i. p. 248.

[20] Cf. De Groot, *loc. cit.*, ii. pp. 712 sqq.

[21] Cf. *ibid.*, ii. pp. 382 sqq.

were still intact in ix. 2 and found also in other tombs. They comprised grapes and fruit (i. 4; iii. 1, 2; ix. 2), grain (iii. 2; ix. 2), meat (ix. 2), as well as bread and pastry (iii. 1, 2, 4; ix. 2). The elaborate and plentiful specimens of fancy pastry which survived in iii. 1 deserve special mention.

Models of furniture; figures of attendants, mounts, &c.

But the care for the dead was not restricted solely to his needs in the matter of clothes and food. He was to be provided also with what he might have enjoyed in life in the matter of accommodation, household comforts, attendance, and the like. This pious intention accounts for the remains found of wooden models of buildings (i. 7; ii. 2; iii. 4), furniture (vi. 4), carts (ii. 1, 2; vi. 4; ix. 2), and the like. Miniature flags, like those from ii. 1 and Ast. 08 (Pl. XCIII), may have been meant to serve him for pious offerings, and painted wooden pegs, like ii. 1. 023 (Pl. CIV), for the performance of rites. To the desire of assuring to the dead an adequate staff of servants, a cortège such as he might have liked to have around him on great occasions, and a well-filled stable, &c., we owe the large and archaeologically instructive series of figurines in clay, wood, and also in mere dough which many among the Astāna tombs have yielded up. Among them we have figures of women and men (i. 8; ii. 1, 2; iii. 2, 4; vi. 1, 2, 4; vii. 2; viii. 1; x. 1), including some mounted; of horses with saddles, of camels and cattle (i. 7; ii. 2; iii. 2, 4; vii. 2). It is scarcely necessary to refer here to the fact that we have evidence from a very early period of Chinese history of the practice of depositing in the graves cheap substitutes in the place of objects of value, and images in the place of the living beings formerly immolated.[22] The small wooden figures of ducks found in i. 1–3, ix. 2 appear to have been placed there as emblems of felicity. Finally we recognize in the clay images of composite monsters from i. 7; iii. 2; vii. 2; x. 1 representations of the mythical creatures (*t'u-kuei*) to whom pious imagination in China from an early age appears to have entrusted the protection of the tomb.[23]

## Section V.—RELICS OF TEXTILE ART FROM THE TOMBS OF ASTĀNA

Textile remains as evidence of trade intercourse.

I have referred briefly, in the course of the above description, to the numerous relics of ancient fabrics found in the tombs examined near Astāna. A variety of circumstances invest them with considerable interest for the archaeologist and the student of textile art, and this makes it desirable to attempt here a succinct review of the various techniques and decorative designs represented among them. The special interest claimed by the silk stuffs from Astāna is due in the first place to the fact that the date of their use and deposit is fixed with sufficient accuracy by inscriptional and other evidence as falling within the seventh and early eighth centuries of our era. This is the very period when the renewed expansion of Chinese political control into Eastern Turkestan, and even beyond it, once more enabled trade to proceed uninterruptedly between China and Central Asia and opened the way for that exchange of varied cultural influences both from the East and West which was its necessary accompaniment. Almost equal importance may be claimed for the circumstance that these silk textiles were recovered from cemeteries near the old capital of Turfān. This territory was then as now the meeting-place of those routes along the T'ien-shan by which most of China's overland trade and other relations with inner and Western Asia were conducted, and the important part that the silk trade played in these from the outset is well known.

Comparison with textiles from Lou-lan and Ch'ien-fo-tung.

It is easy to recognize the value of the contribution to the history of textile art afforded by these discoveries at Astāna owing to the fact that they are chronologically intermediate between the abundant textile remains, mainly from later T'ang times, recovered by me at the 'Thousand Buddhas' of Tun-huang and those far more ancient relics brought to light in the grave-pits of Lou-lan. Comparison of the silk remains from Astāna with those from the other two sites helps

[22] See De Groot, *loc. cit.*, ii. pp. 382 sqq., 806 sqq.

[23] Cf. *ibid.*, ii. pp. 823 sqq.

to throw fresh light on the development of China's silk manufacture. It illustrates in particular a curious feature which has long been recognized—the influence exercised during medieval times by the imitation of Western designs on this the most famous, perhaps, of China's industrial arts. The comparison will be made easier if our rapid survey of the Astāna fabrics conforms to the lines followed in the analysis of the Ch'ien-fo-tung textiles, with which they offer many points of close contact.[1]

This contact is significantly brought out from the first by the almost total absence among the decorated textiles of Astāna of any material other than silk. Even the single piece of painted canvas i. 8. 04, amongst all the decorated fabrics recovered, is treated in a fashion which clearly suggests imitation of a polychrome figured silk. That there was an abundant supply of silks in the Turfān tract during the seventh century is attested not merely by the practically exclusive use of this material in all ornamented textiles, but also by the very frequent occurrence of plain silks, both undyed and coloured, among the shrouds and miscellaneous remains of old garments in which the bodies were found wrapped.[2] This abundance of silk deserves the more notice firstly because silk is not an indigenous product in the Turfān region nor in any of the oases nearest to it, and secondly in view of the opinion which, as indicated above, clearly prevailed that only valueless materials should be used in burial.[3] I have not been able to observe any difference, as between datable tombs, in the degree of profusion with which silk fabrics, whether plain or decorated, were used, and am hence led to conclude that silk materials must always have been readily available at Kao-ch'ang, at least for well-to-do people such as were probably laid to rest in the tombs examined.

Abundance of silk fabrics.

I need not examine here how this observation is to be reconciled with the fact that according to Hsüan-tsang's account of his desert crossing from Kua-chou to Hāmi in A. D. 630, this, the least difficult of the routes from the north-western borders of the Chinese Empire as they then stood to Turfān, was then unfrequented by traffic, if not altogether closed.[4] It is possible that a good deal of the plain silk materials found in the Astāna tombs was imported from Khotan and from that Sogdian region, comprising the present Ferghāna, Samarkand and Bukhāra, which, as we shall see farther on, is the most probable source of a great portion of the polychrome figured silks found in the face-covers and in the remnants of old garments. But Mr. F. H. Andrews, to whose collaboration I am indebted for all data connected with the Astāna fabrics, has so far been unable to make any close examination of the plain silks from that locality or to compare them with those from Ch'ien-fo-tung and Lou-lan. Nor is it by any means certain that comparison would reveal such definite differences in weave technique as would permit plain silks to be even tentatively assigned to different regions of manufacture. Even within China itself contemporaneous products of its silk industry probably varied then in texture, quality, &c., quite as much as they do now. A reference to Mr. Andrews' 'Notes on the technique of textile fabrics from Ch'ien-fo-tung'[5] will serve to explain the terms employed in the Descriptive List, and in the following remarks to describe the different techniques of weave represented among the Astāna fabrics, whether plain or decorated.

Origin of plain silk materials.

Turning to the decorated silk fabrics from Astāna, it is obvious that the peculiar uses which explain their presence in these tombs must also account for the relative frequency with which the various methods of decoration occur among them. In this respect it is particularly to be noted that while among the rag-like remains of miscellaneous garments used for wrapping the bodies we find specimens of all the principal methods of decoration, custom appears to have limited those

Polychrome figured silks used for face-covers.

[1] Cf. *Serindia*, ii. pp. 897 sqq.
[2] See above, ii. pp. 669 sq.
[3] Cf. above, ii. p. 670.
[4] Cf. *Serindia*, iii. pp. 1097 sq., 1143 sqq.
[5] See *ibid.*, ii. pp. 897 sqq.

oval or circular face-covers which have furnished us with many and specially interesting pieces of decorated fabrics, strictly to polychrome figured silks. In the great majority of stuffs of this kind used for face-covers the designs are, as we shall see farther on, purely 'Sasanian' in type and execution, and this suffices to establish the fact that they were imported into Turfān from the West. The custom of using such figured silks of bright colours for face-covers must have been well established long before commerce in Chinese industrial products was facilitated by the Chinese annexation of Turfān in 640; for examples of it are found in practically all the groups of tombs that include burials proved to date from A. D. 608 onwards. This may help to explain why among the polychrome figured silks of face-covers those of purely 'Sasanian' patterns and undoubtedly Western Asiatic origin greatly preponderate.[6]

Differences of weave in Chinese figured silks.

The question whether the other polychrome figured silks, recovered from tattered remnants of garments, originated from the side of China or from Central Asia and Īrān is more difficult to determine; for the floral or geometric patterns most frequent among them do not always afford a sure criterion.[7] But there are some among them of which Chinese manufacture is made quite certain not merely by the design but by that peculiar 'warp-rib' weave with which we have already had occasion to become familiar, in connexion with the ancient Chinese figured silks from the grave-pits of Lou-lan.[8] It may be observed here that, with the exception of these few stuffs, all the figured silks, whether polychrome or damasks, appear to be worked in that twill weave the absence of which is so significant a feature among the early Chinese silk remains from Lou-lan.[9]

Damasks and decorated gauzes.

The method of monochrome decoration applied to the texture of silk fabrics is represented by a series of damasks and gauzes executed in a variety of designs.[10] Their number is not large in proportion to that of polychrome figured fabrics, and among their patterns, mostly floral or geometric, there is none distinctly showing the influence of Western Asiatic textile art. On the other hand, there are at least two damasks which by the affinity of their designs to specimens recovered on the Tun-huang Limes suggest Chinese manufacture.[11]

Silk tapestry and embroidery.

The only specimen of silk tapestry work is the finely woven shoe vi. 4. 01 (Pl. XCIII), which by its design as well as by the Chinese characters inserted in bands is clearly proved to be of Chinese workmanship. We have embroidery needlework represented by a number of pieces, all showing floral designs, mostly very stylized and executed in chain-stitch.[12] The absence of naturalistic treatment and of the satin-stitch common among the embroideries of Ch'ien-fo-tung may, perhaps, be indications that this embroidery was local work.[13] Finally mention may be made of patterned

Printed and 'resist'-dyed silks.

silks produced by printing or dyeing. The two printed silks i. 7. 01 and x. 1. 04 (Pl. LXXXII) show well-executed floral patterns from blocks cut under the influence of Chinese art. The silks dyed by 'resist' process, slightly more numerous, display floral patterns, in one case applied

[6] Such figured silks of 'Sasanian' type from face-covers are i. 1. 01, 3. a. 01, 3. b. 01, 5. 03, 6. 01; v. 1. 01; vii. 1. 01, 06; ix. 2. 01, 017, 022 (Pl. LXXVI–LXXX). Even in those pieces from face-covers, v. 2. 01; ix. 3. 02 (Pl. LXXVIII, LXXX), for which weave technique and design indicate Chinese origin, the imitation of 'Sasanian' designs is unmistakable.

[7] Figured silks worked with floral or geometric patterns are i. 1. 011, 5. a. 01. a–b, 8. 01–3; iii. 2. 03; ix. 2. 02; x. 1. 01, 03, 05–8; for illustrations see Pl. XXXVI, LXXVIII, LXXIX, LXXXIII–LXXXV, LXXXVII. For the striped silks i. 1. 09; vii. 1. 02; ix. 2. 025, which suggest non-Chinese manufacture, see below, ii. p. 679. With these striped silks may be grouped the gauze vi. 03 (Pl. LXXVII), decorated in rainbow-coloured bands.

[8] See ii. 1. 022; vi. 02, 2. 04, Pl. XXXVI, LXXVIII, XCIII. In vi. 1. 03, ix. 3. 03, the style of design and treatment is also undoubtedly Chinese, but the distinctive 'warp-rib' weave is absent; see Pl. LXXVIII, LXXX.

[9] Cf. above, i. p. 234.

[10] For damasks, see i. 1. 010, 3. b. 02, 5. a. 01. c, 7. 03, 05–6; vi. 01; viii. 1. 01; ix. 2. 08–9, 014; x. 1. 05; for gauzes, i. 7. 04; iii. 2. 01–2; vi. 3. 09; ix. 2. 016; x. 1. 02. Illustrations are seen in Pl. XXXVI, XLV, LXXIX, LXXXIV, LXXXV.

[11] See i. 5. a. 01. c; ix. 2. 09, Pl. LXXXIV.

[12] See vi. 01, 1. 04, 06, 09; 3. 07.

[13] Cf. *Serindia*, ii. pp. 901, 904 sq.

freehand and elsewhere by stamps or stencils.[14] In two silks a spot pattern is produced by knot-dyeing, a technique still largely practised in north-western India and of which there is also an example in a fabric from the T'ang fort of Endere.[15]

Decorative designs, Chinese or 'Sasanian'.

But, as in the case of the textile relics from Ch'ien-fo-tung, the special archaeological and artistic interest of the Astāna silks lies far more in the designs they exhibit than in the techniques and methods of ornamentation employed. Among their designs two main classes can readily be distinguished. The first class comprises designs either characteristically Chinese in style and execution or composed of motifs which, if not exclusively Chinese, may yet be reasonably assumed to have originated and been applied in the early textile art of China independently of Western influences. To the other class belong the designs which share the essential features of style peculiar to the decorated silks produced in Īrān and the Near East during the period conveniently designated as 'Sasanian', or in which the treatment shows them to have been imitated by Chinese hands from 'Sasanian' examples.

Chinese silks imitating 'Sasanian' designs.

I have had occasion, when dealing in *Serindia* with the decorated silks from the 'Thousand Buddhas' of Tun-huang, to emphasize the importance attaching to certain fabrics found among them of which the designs belong to this second class. They serve as witnesses of that artistic penetration of Iranian art into the Far East in which textiles of 'Sasanian' type were the transmitting agents, and of which the result is clearly reflected in the designs of some well-known silks preserved since the middle of the eighth century among the temple treasures of Japan.[16] Some of the 'Sasanian' figured silks from Ch'ien-fo-tung described in *Serindia* and certain others subsequently recovered by M. Pelliot from the same hoard[17] can be recognized with certainty as direct imports from Western Asia, while some are undoubtedly Chinese imitations of similar fabrics. To these the tombs of Astāna have now added specimens, both of original 'Sasanian' textiles and of fabrics produced under their influence, which are not only more numerous but also manifestly older. The *terminus ad quem* in the case of these Astāna specimens lies fully three centuries farther back than in that of the Ch'ien-fo-tung materials, and they may safely be assumed to be approximately contemporaneous with the fabrics the designs of which had served as models for the Chinese silks imitating 'Sasanian' style preserved at the temples of Nara.

'Sasanian' figured silks at Astāna.

Turfān, notwithstanding the important Chinese element in its population so strikingly attested by the discoveries in the Astāna cemeteries, yet belongs to a portion of innermost Asia in which Iranian influences have strongly asserted themselves during a prolonged period. Hence we seem justified in first reviewing here those Astāna textiles which show purely 'Sasanian' designs and must therefore be considered as products of Western or Central Asia. Next we shall turn to those in which characteristic features of 'Sasanian' textile style have been copied and adapted by the hands of Chinese workers. In adopting this order we may note the significant circumstance that whereas distinctively Chinese designs vastly preponderate among the many silks of Ch'ien-fo-tung, and those of 'Sasanian' type are very few, the 'Sasanian' specimens at Astāna make up a considerable proportion of the total of figured silks and close upon one-half of those executed in colours.

Limitation of analysis of designs.

In dealing with the designs of each class it will not be possible for me to attempt a systematic analysis of all details. I have before me at the time of writing neither adequate reproductions of the silks nor drawings of patterns, which are so necessary for the illustration and study of fabrics where these have for the most part been preserved only in small, and frequently much injured,

[14] See ii. 1. 014–15; vi. 2. 04, 3. 03, 07; ix. 2. 012 (freehand); Pl. XXXVI, LXXVIII, LXXXII.

[15] See vi. 1. 01–2; *Anc. Khotan*, i, pp. 430, 442; ii. Pl. LXXVI.

[16] Cf. *Serindia*, ii. pp. 907 sq. To the references there given in note 1 should be added von Falke, *Seidenweberei* (first ed.), i. pp. 87 sqq., Figs. 110–19.

[17] See *Serindia*, ii. p. 907, note 6.

fragments. The preparation of these reproductions must necessarily wait until these often very delicate and friable relics of ancient textile art have received the careful technical treatment by expert hands in London of which many are much in need. Moreover Mr. Andrews, on whose detailed and experienced examination of all the textile materials my own observations are necessarily based, has for similar reasons not yet been able to complete [as he has done since] the descriptions of them for the List below. Nevertheless I hope that the brief notes here recorded will suffice to bring out the essential points of archaeological interest.

Boar's head in 'Sasanian' medallion.

Among the designs of purely 'Sasanian' style the most striking is that of the polychrome figured silk, fortunately well preserved, which is used for the face-cover Ast. i. 5. 03 (Pl. LXXVI). It shows a finely designed boar's head, highly stylized, within a circular border of pearls, typical of 'Sasanian' medallions, and is a very powerful piece of work. The angular treatment of the head with stepped outlines connects this fabric very closely with a group of 'Sasanian' fabrics which Professor von Falke has ascribed to the silk industry of Eastern Īrān and which has some characteristic representatives also among the Ch'ien-fo-tung silks.[18] The popularity of this particular motif is attested by its recurring, in similar treatment but on a smaller scale, in the polychrome figured silks used for face-covers of two other bodies, Ast. i. 6. 01 and ix. 2. 017, the burial of which is datable about A. D. 632 and in A. D. 689, respectively. Still more interesting is it to find the design of a boar's head, nearly identical in treatment and setting, used in the decorative painting of the ceiling of a Toyuk cave, reproduced by Professor Grünwedel and since completely destroyed.[19] The use made of designs from 'Sasanian' textiles for mural decoration is illustrated also by the painted frieze of a cave at the 'Ming-oi' of Kizil, drawn and described by Professor Grünwedel and now in Berlin, which shows confronting ducks within the typical pearl medallions.[20] With the 'boar's head' silks must be grouped also two other figured silks in Astāna face-covers, v. 1. 01; vii. 1. 01 (Pl. LXXVII), which show the same 'stepped' treatment of animal forms within 'Sasanian' medallions but are too poorly preserved to permit of an accurate determination of their central motifs.

'Sasanian' borders enclosing plant motifs.

In two more silks from face-covers, i. 3. b. 01 and ix. 2. 01 (Pl. LXXIX), we find 'Sasanian' pearl borders enclosing motifs treated in a similar though less pronounced angular fashion. In i. 3. b. 01 it is a stylized grape vine, in ix. 2. 01 a very angular flower. Both designs show at the cardinal points of the medallion borders rectangular spots which seem to connect them with Chinese imitations of 'Sasanian' fabrics found both at Nara and Ch'ien-fo-tung.[21] With these two fabrics may be grouped also the figured silk piece from a face-cover, i. 1. 01 (Pl. LXXX), in which the design shows a conventional tree with leaves and flowers on either side within a circle of discs, though the central motif is of less angular treatment than in the previously noted designs. The 'Sasanian' medallion border is the same as in the last two examples. Similarly we find here a label ornamented with small circles serving as a base for the central motif, just as it is seen in i. 3. b. 01 and in the Persian 'duck stuff' of the Vatican and the painted frieze of the Kizil 'Ming-oi'.[22]

[18] Cf. v. Falke, *Seidenweberei* (first ed.), i. p. 98 sqq., Figs. 138–45; *Serindia*, ii. pp. 908 sq. (Pl. CVI, CXI, CXV).

[19] See Grünwedel, *Kultstätten*, pp. 331 sq. In the decoration of the same Toyuk cave Dr. Klementz in 1898 had already noted another series of 'Sasanian' medallions showing heads of cocks, executed in the same style; see his *Nachrichten über Turfan*, pp. 45 sq. In some other remains of wall-paintings since lost he had also rightly recognized a nexus with the art of Western Asia; cf. *ibid.*, p. 44.

[The frieze with medallions showing 'boars' heads' is illustrated also in M. d'Oldenburg's *Russian Turkestan Expedition*, p. 50, fig. 47.]

[20] See Grünwedel, *loc. cit.*, p. 79, Fig. 172. For a reproduction of this mural decoration, which in its motif and ornamental details shows a very close resemblance to the Vatican 'duck stuff' of Persian origin, ascribed to the 7–8th century, see v. Falke, *loc. cit.*, Figs. 99, 100.

[21] See v. Falke, *ibid.*, Figs. 110, 111, 118; *Serindia*, iv. Pl. CXVI. a, Ch. 00291.

[22] See above, note 20.

Western lattice pattern with heart shapes.

Standing quite by itself at Astāna and of particular interest is the design of the figured silk in the face-cover vii. 1. 06 (Pl. LXXX). It consists of a lozenge lattice pattern, formed by bands of heart-shaped leaves, and of an eight-pointed star in the field of each lozenge, containing a flower with four heart-shaped petals. The general design as well as the decorative details show unmistakably close resemblance to those found on the one hand in a late Hellenistic fabric from Antinoe at Berlin, and on the other in a Byzantine silk at Liège which Professor von Falke dates approximately from the first half of the seventh century.[23] I believe we may safely recognize in this interesting Turfān relic an import from the silk industry of the Near East. The pieces of a 'Sasanian' fabric used in the curious patchwork ix. 2. 019 (Pl. LXXVII) are too small to permit of a determination of its special character.

Western designs in Chinese stuffs.

We now turn to a small but distinctly instructive group of silks which illustrate the influence exercised by Western designs upon what unmistakably is the work of Chinese weavers. First among them may be noted two fabrics in which there is clear evidence of Chinese manufacture, not only in the style of treatment, but also in the peculiar 'warp-rib' weave. We have previously noticed this distinctive technique as characteristic of all the oldest Chinese silk textiles, whether from the grave-pits of Lou-lan or the Limes of Tun-huang.[24] That we should find some specimens of it surviving in the Astāna tombs cannot cause surprise, since we find it also represented in at least one relic preserved in the Tun-huang hoard for the deposit of which the *terminus ad quem* is about four centuries later.[25] The design of the fabric, pieces of which have been sewn together in ix. 3. 02 (Pl. LXXX) to form what looks like a cushion cover, shows two rows of medallions of 'Sasanian' type one above the other, with the usual pearl border. Within both there are seen pairs of winged horses, treated in an animated style recalling the horses which appear in silks preserved at Nara,[26] but in varying poses. The floral motif used as base in both rows of medallions is also Chinese, and resembles that found in a corresponding position in a printed Chinese silk from Ch'ien-fo-tung, imitating a 'Sasanian' design.[27] In the other 'warp-rib' fabric, i. 5. b. 01 (Pl. LXXIX), a much-decayed face-cover, we see parts of 'Sasanian' medallions which are filled with confronting swans on either side of a flowering tree and with subsidiary flower shapes. A flying crane appears in the spandrel. Chinese feeling pervades the design notwithstanding its stiff 'Sasanian' setting.

Other 'Sino-Sasanian' patterns.

In the better preserved fragment v. 2. 01 (Pl. LXXVIII, LXXXI), also a face-cover, the arrangement of the two oval medallions, one placed above the other, each with an outer pearl border and an inner of fleur-de-lis scrolls, is obviously borrowed from 'Sasanian' models. But the pairs of confronting animals, two in each, as well as the foliate scrolls at the base, are treated with Chinese freedom. The cockatrices in the upper medallion closely resemble those found in silks from Nara,[28] while what remains of the lower one shows a finely designed winged lion. Pairs of running deer and of sheep-like animals appear in the spandrels. It is curious to note that the Chinese weaver has preserved something of the 'stepped' outlines of the Western models of this design. The weave is characterized by Mr. Andrews as a transition from 'warp-rib' to twill. Among the remaining specimens of this 'Sino-Sasanian' group the fragment of a face-cover, i. 3. a. 01 (Pl. LXXIX), well preserved in its colours, is of particular interest, because the geometrically treated flower ornament filling the spandrel between the medallions is almost identical in design

[23] Cf. v. Falke, *loc. cit.*, i. p. 33, Fig. 34; ii. pp. 7 sq., Fig. 228. We have, perhaps, a later derivative from the same source in the pattern of Ch. 00169, *Serindia*, iv. Pl. LV.

[24] See above, i. pp. 233 sq.

[25] Cf. *Serindia*, ii. p. 963, Ch. 00118; Andrews, *Chin. Figured Silks*, p. 14, Fig. 10.

[26] See v. Falke, *loc. cit.*, i. Figs. 110, 111.

[27] See *Serindia*, iv. Pl. CXVI. 4, Ch. 00291.

[28] See v. Falke, *loc. cit.*, i. Figs. 118, 119.

with the one which is used for the same purpose in the banner stuff of the Mikado Shomu (d. A. D. 749)[29] and found also, with slight variations, in quite a number of our Ch'ien-fo-tung fabrics.[30] The leaves and flower cones which appear within the remaining top portion of the medallion are of exactly the same type as those of the tree often seen in the background of Ch'ien-fo-tung paintings of the 'Western Paradise' or as those decorating the canopies painted over principal figures in the frescoes of the 'Caves of the Thousand Buddhas'.[31] A similar tree figures also within the medallion of the above-mentioned banner stuff from Nara.

Chinese and Sasanian motifs combined.

The details of the design in the same stuff enable us to treat the figured silk from the face-cover ix. 2. 022 (Pl. LXXVIII) as also belonging to this group; for the rosettes surrounded by pearl borders and placed in rows, which form the main feature of the pattern, are very closely allied to those which in the Nara fabric appear in the centre of the spandrels, while the geometrical rosette formed of four palmette leaves, which in our silk fills the spandrels, has its near relations in stylized floral ornaments used there, as well as in certain Ch'ien-fo-tung silks.[32] Finally we have a very curious combination of Sasanian and Chinese motifs in the fragment of a figured silk, ix. 3. 03 (Pl. LXXVIII), designed in bands. The topmost motif shows pairs of confronting phoenixes between acanthus scrolls, treated in Chinese style. Below this follow two bands of rectangular billets, alternately yellow and blue, arranged just as they appear in the same colours on ancient Chinese silks from the Tun-huang Limes and Lou-lan.[33] After a second pair of such bands, separated from the first by a row of lozenges, there comes a band composed of 'Sasanian' medallions each containing an eight-petalled flower, with palmettes in the spandrels. With the exception of this unmistakably Western motif the whole design adheres closely to the early Chinese style of textile decoration as illustrated by the Han specimens quoted. Yet the weave of the fabric is twill, as opposed to the 'warp-rib' which is exclusively used in the latter. We can scarcely be wrong in assigning the instructive fragment to a period of transition, when Chinese textile craftsmanship had departed from tradition in weave for the sake of a more convenient technique, but in design allowed only a subordinate role to the characteristic motif of the new style, the medallion.

Designs distinctively Chinese.

Our review of the other main class of designs, those either distinctively Chinese in style or else showing no sign of the influence of 'Sasanian' motifs, may suitably start with those which adhere very closely to the designs of our earliest known Chinese figured silks, as illustrated by the finds from Lou-lan. The number of such polychrome figured silks is not large, but it is important to note that the indication of early production afforded by their style of design is fully supported by their technique, which is 'warp-rib'. It is also, perhaps, significant that they were not found in face-covers, but only among the rags of worn clothing used for the wrapping of the bodies or, in the case of ii. 1. 022 (Pl. XCIII), for making up model shoes. The motifs in this silk, as well as in vi. 2. 04 (Pl. XXXVI) and vi. 1. 03 (Pl. LXXX), comprise fantastic highly stylized forms of animals, shown in movement one behind the other, just as they appear in the most striking of the Lou-lan silks, as well as very free cloud scrolls, of which the Lou-lan fabrics provide numerous examples.[34]

Chinese design of quasi-archaic style.

But the characteristic quasi-archaic style which marks off these specimens from the rest of the Astāna silks is best observed, perhaps, in vi. 02 (Pl. LXXVIII), a comparatively large and well-preserved piece. Pairs of confronting stork-like forms, in stiff angular treatment, are set in alternat-

[29] See v. Falke, *loc. cit.*, i. Fig. 110.

[30] See *Serindia*, iv. Pl. CVI (Ch. liv. 005), CVII–CVIII, CXVI. A (Ch. 00181), &c.

[31] See e. g. *Th. Buddhas*, Pl. X, XI; *Serindia*, ii. Figs. 213, 218.

[32] Cf. *Serindia*, iv. Pl. CVI (Ch. liv. 005), CVIII (Ch. lv. 0028. 15), CXI (Ch. 00171), and ii. p. 972.

[33] See *ibid.*, iv. Pl. LV, T. xv. a. 002. a; above, i. pp. 226 sq., 241; L.C. 031. b, Pl. XXXV, XLII.

[34] Cf. above, i. pp. 236 sq., 240.

ing wide and narrow arches, while above and below stems connected with the arches carry tiers of highly stylized leaves, flowers and fruits. The arcading here used as a kind of framework clearly links this pattern with the designs in a number of silk fragments recovered from the Han Limes and Lou-lan and also in an early piece from the hoard of the 'Thousand Buddhas'.[35] Finally we have another purely Chinese design in the silk tapestry of the shoe vi. 4. 01 (Pl. XCIII). It shows bands with a succession of geese placed in panels the colours of which counterchange with those of the birds. Chinese characters woven into bands at the toe indicate the Chinese origin of the textile and its design.

Chinese designs of floral or geometric type.

Among the mass of other designs which belong to the great class above indicated we may conveniently distinguish two main types, though the dividing line between individual specimens is often difficult to draw. One type may be recognized as comprising floral motifs, sometimes combined with animal figures, mostly birds. To the other type belong purely geometric designs, made up in their simplest forms of variations of the lozenge diaper, chevrons, 'repeating spots', and the like. We had occasion similarly to distinguish these two types in the Ch'ien-fo-tung textiles. But it deserves to be noted that the strong tendency towards naturalistic treatment observed in most of the floral designs from Ch'ien-fo-tung is absent in the designs of almost all the Astāna fabrics, whatever their method of decoration. Is it possible to recognize in this a kind of negative evidence that the marked trend towards naturalistic freedom characteristic of Chinese art of the T'ang and later periods had not yet fully set in during the seventh century?

Floral designs in embroidery.

It is natural that the designs seen in the embroidery work, usually executed on silk gauzes, should be of the floral type, considering the greater freedom from technical limitations enjoyed by the embroiderer's needle. But the floral motifs found in vi. 01; 1. 06, 09 (Pl. XLV), are very conventionalized, and even in the bewildering medley of flowers, leaves, stars, &c., that fills the small embroidered panels of vi. 3. 07 (Pl. LXXVIII), the individual shapes are very stylized. Of course, all these embroideries may be local Turfān work and not executed by Chinese hands.

Polychrome figured silks with floral or geometric patterns.

Among the polychrome figured silks the floral designs most frequent show rows of rosettes, more or less stylized, sometimes combined with leaves or coloured borders, and bearing in general a strong resemblance to pieces found among the Ch'ien-fo-tung textiles.[36] In others the rosettes are developed into 'spots' of elaborate patterns closely akin to those found in silks of undoubtedly Chinese origin from Nara and Ch'ien-fo-tung.[37] Simple 'geometric' patterns with lozenges and rectangles (i. 5. a. 01. a, b, 02; ix. 2. 02; x. 1. 01; Pl. LXXVIII, LXXXIII, LXXXIV) are less frequent in polychrome stuffs than in damasks. With such patterns may be mentioned also a small series of striped silks, i. 1. 09; vii. 1. 02; ix. 2. 025 (Pl. LXXVII), not unlike the modern silks from Marghilān and other places in Ferghāna.

Patterns of damasks and gauzes.

Monochrome figured silks or damasks are not numerous at Astāna, and just as at Ch'ien-fo-tung they show mostly 'geometric' designs.[38] Of these, ix. 2. 09 closely resembles a damask found at the T'ang shrine of T. XIV on the Tun-huang Limes.[39] Among the damasks of the floral type, i. 1. 010 (Pl. LXXXIV) is worked in an elaborate 'spot' pattern like the polychrome examples just mentioned. In i. 7. 03, 05 (Pl. LXXIX, LXXXIV) floral motifs conventionally treated are combined with pairs of flying birds. Into the interesting scheme of i. 5. a. 01. c (Pl. LXXXIV)

[35] See *Serindia*, iv. Pl. LV (T. XV. a. 002. a, iii. 0010. a); ii. pp. 963 sq. (Ch. 00118); above, i. p. 241 (L.C. 031. b; Pl. XXXV, XLII; ii. 05. a).

[36] See i. 8. 01–3; iii. 2. 03; x. 1. 06–8 in Pl. LXXVIII, LXXIX, LXXXIII, LXXXVII; cf. *Serindia*, iv. Pl. CVII, CVIII, CXVI.

[37] Compare i. 1, 011, 7. 06; x. 1. 03, 05, in Pl. XXXVI, LXXVIII, LXXXIII, LXXXV, with v. Falke, *Seidenweberei*, i. Fig. 110; *Shōsōin Catalogue*, ii. Pl. 89–91, 109–10; *Serindia*, iv. Pl. CVI (Ch. liv. 005), CXI (Ch. 00171, 00181), CVIII (Ch. lv. 0028. *1*, *15*) CXVI. A.

[38] See i. 1. 02. a; vi. 01; viii. 1. 01; ix. 2. 08–9, in Pl. XLIII, XLV, LXXXV; also i. 3. b. 02.

[39] See *Serindia*, iv. Pl. CXVII, T. XIV. v. 0011, a.

we find introduced pairs of confronting beasts, along with arcades of cloud scroll and fret columns curiously reminiscent of a Han silk from the Tun-huang Limes and of a 'warp-rib' fabric of archaic type from Ch'ien-fo-tung.[40] Reasons of technique explain why only 'geometric' patterns, all of a simple character, are to be found in the gauzes; three of them show a small lozenge diaper closely resembling a gauze from Ch'ien-fo-tung.[41] The rainbow-coloured gauze, vi. 03 (Pl. LXXVII), a piece of very fine weaving, stands by itself.

Designs of printed and 'resist'-dyed silks.

Among the silks decorated by printing or dyeing both floral and geometric designs are represented. Patterns of the former type are seen not only in the block-printed silks i. 7. 01; x. 1. 04 (Pl. LXXXII), which show a tendency towards naturalistic treatment, but also in the dyed piece ix. 2. 012 (Pl. LXXXII), produced by 'resist' method applied freehand. In the other specimens of silks dyed by this method the patterns consist of lozenges and circles formed with spots.[42] As regards the pattern thus produced in vi. 2. 04; 3. 03, 07 (Pl. XXXVI, LXXVIII), it is of interest to note that it occurs also on the Lou-lan figured silk L.C. 01 (Pl. XXXV), with a slight variation accounted for by the weave. Finally in vi. 1. 01, 02 (Pl. LXXXVI) we have an 'all-over' pattern of knot-dyed spots.

## Section VI.—LIST OF ANTIQUES FROM CEMETERIES NEAR ASTĀNA

### OBJECTS EXCAVATED IN TOMBS OF GROUP i

**Ast. i. 1. 01. Fr. of figured silk** from face-cover (a); circular, cut from larger piece and surrounded by pleated plain silk.

Byzantine pattern consisting of circle of discs, interrupted at cardinal points by a square, five discs in each quadrant. Within circle a conventional, bisymmetrical tree with large half-open flower in profile at top, broad flat centre stem rising from label, placed across base and ornamented with five small circles. On either side of central stem a branch springs curving spirally downwards, bearing vine (?) leaves and berries and terminating in a flower.

Colouring: Discs buff on dark blue. Field dark buff, stems light buff, leaves bright green, veined yellow. Central flower, yellow, green and blue. Twill weave. *Rev.* lining thin felt and fine plain silk, to which frs. of coarse brown hair adhere. All much perished, faded, and extremely brittle. Cf. Ast. i. 3. b. 01. Diam. of circle about 7¼". Pl. LXXX.

**Ast. i. 1. 02. Frs. of painted silk,** similar to Ast. i. 2. 03. Very brittle.

**Ast. i. 1. 02. a. Fr. of silk damask** (found with Ast. i. 1. 02). Pattern, a trellis formed of elongated hexagons. Within each, at each end, an equilateral hexagon of which two sides are formed by the short (end) sides of the enclosing hexagon. Within small hexagon a rhombus, with its sides parallel to four of the sides of hexagon. Between the two small hexagons and the long sides of enclosing hexagon, two rhombuses, same size as end ones and symmetrically spaced. These and field of small hexagons are woven 'tabby', remainder in twill. Silk of two colours shaded one into the other—dark green and golden brown, with traces of blue. Perhaps originally one colour (blue ?), now faded and discoloured. Finely woven. Very ragged and fragile; c. 6" × 4". Pl. XLIII.

**Ast. i. 1. 03. Pottery jar;** wheel-made, grey body, flat-bottomed and high-shouldered, drawing in to small neck above, and expanding again at once to everted rim. Outside painted black, with design outlined in lines of dull grey: band round middle, and series of blunt-ended petals above and below, pointing respectively downwards and upwards to band. Design brought out prominently by bands of large round white spots, following outlines. Broad red stripe also down centre of each petal, and round inside and sloping outer edge of rim. Very coarse decoration of same kind found on most Astāna pottery. Good condition. Empty. H. 8", gr. diam. 6¾", diam. of mouth 5".

**Ast. i. 1. 04. Pottery goblet;** oval cup (wheel-made) with everted rim, joined to spreading circular foot (broken). Grey body, hard fired, with traces over whole of white spot decoration on black, same as on i. 1. 03, but almost all flaked off. Band of red inside rim. H. 5½", diam. of mouth 4¼", of waist 1¼", of base 3¼".

**Ast. i. 1. 05. Pottery goblet;** shallow bowl-shaped cup with out-turned rim, and very slightly expanding twelve-sided pedestal turning into circular bevelled foot. Painted black, white, and red, in same style of decoration as Ast. vi. 3. 09; ix. 2. 016 (Pl. XXXVI).

[40] See T. xv. a. iii. 0010 and Ch. 00118, *Serindia*, iv. Pl. LV; ii. p. 963.

[41] With i. 7. 04; iii. 2. 01; x. 1. 02 (Pl. XXXVI), cf. *Serindia*, iv. Pl. CXX, Ch. 00344; other gauzes are iii. 2. 02;

[42] See ii. 1. 014–15; vi. 2. 04; vi. 3. 03, 07 in Pl. XXXVI, LXXVIII.

i. 1. 03, with band of white discs round upper end of pedestal, series of downward-pointing petals below, and series of upward-pointing petals round outside of bowl. Inside of cup painted black, with red round rim. Good shape and good condition. H. 6½", diam. of mouth 4½", of upper end of shaft 1¾", of foot 4⅜". Pl. XC.

**Ast. i. 1. 06. Pottery jar;** same ware and decoration in black with white spots as Ast. i. 1. 03; and similar in form, but shorter and more squat. Band of spots round middle left out, the ends of upward and downward petals alternating with each other in its place. Remains of fine dark-brown decayed matter inside. H. 4⅞", diam. of mouth 3", of shoulder 5", of bottom 3". Pl. XC.

**Ast. i. 1. 07. Small pottery dish or bowl;** circular, with flat bottom, and expanding sides curving in again to inward-bevelled rim. Remains of white spot and red decoration on black, as on Ast. i. 1. 03, &c., but almost effaced. Decayed flaky buff-coloured matter inside. H. 1⅝", diam. of mouth 3⅛", of bottom 1⅞".

**Ast. i. 1. 08. Number of small silk frs.,** buff, blue and bright red. Plain weave. Well preserved.

**Ast. i. 1. 09. Fr. of silk,** striped narrow blue and yellow; both stripes shaded. Twill. 6½" × 4".

**Ast. i. 1. 010. Fr. of silk damask.** Pattern quatrefoil in lozenge-shaped rosettes, adjoining horizontally; arranged in lines, alternate lines shifted half the unit of pattern, forming a zigzag space of ground between. Buff, part dyed blue. Cf. pattern of Ast. i. 1. 011, Pl. LXXVIII, LXXXIII. Good condition. 21" × 2¼". Pl. LXXXIV.

**Ast. i. 1. 011. Fr. of figured silk.** Blue ground with rosettes in shades of buff blue and green, alternately quatrefoil and hexafoil arranged *en échelon*, each type of rosette forming a row of its own kind. The foils are formed of delicately woven palmettes attached by stems to a centre boss. Fine twill weave. For type, cf. *Ser.* iv. Pl. CXI, CXVI. A, Ch. 00181. Fragile and ragged. Colour bright. 6¼" × 3¼". Pl. LXXVIII, LXXXIII.

**Ast. i. 1. 012. Wooden duck,** carved in the round and to some extent conventionalized. Graceful boat-shaped body ending in long finely pointed tail; under-side curved and keeled; top flat from side to side, but lightly concave from breast to tail, and with head and neck standing up from it in relief. Neck is thrown back flat from breast, and head held erect with long well-curved back retracing line of neck.

Curved under-side painted dark red, feet not marked; upper side painted with black and red lines on white ground to indicate feathers. A short curved series, emphasized by incised lines, on either side of head and neck to represent wings, and straight painted series behind to represent tail; but whole much worn.

Neck painted black or dark brown; upper part of head light blue, with eye (in relief) white outlined black. Bill light red, carefully carved, with nostrils at upper end, converging grooves below, ridge along middle of top, and groove marking division of bill along sides.

Whole very carefully made and in good condition. Use uncertain; perhaps symbol of happiness. For others, see Ast. i. 2. 06, 3. 021. Length 5¼", height 1⅞". Pl. CIV.

**Ast. i. 2. 03. Frs. of blue silk** of fine texture, painted with brown, white and black; from serpentine lower bodies of Fu-hsi and Nü-wa. Too fragile to open out. Mass measures 12" × 8".

**Ast. i. 2. 04. Pottery bowl,** roughly made; painted black, with band of pearls below rim and a red line. Rising from base, four petal-shape divisions outlined red, within which a row of pearls and red central rib. Remains of food adhering at bottom. Diam. 6" × 3¼". Pl. XC.

**Ast. i. 2. 05. Wooden food bowl,** turned thin and of full depth inside. Split down one side and joined with four string stitches. Narrow ring foot. Diam. 5¾", height 3¼", thickness of wall ⅛" to ¼". Pl. XCI.

**Ast. i. 2. 06. Wooden duck,** with boat-shaped body slightly hollow on upper surface, into which neck and head are thrown back, head pointing forward with beak slightly open. Head realistic and well, though rapidly carved. Portion of bark remaining under body. Good condition. See also Ast. i. 1. 012, 3. 021. L. 3⅞", width 2¼", height 2⅛". Pl. CIV.

**Ast. i. 3. 06. Three Chinese coin-shaped silver discs** without inscr., but drilled with two holes in opposite edges for threading as ornaments.

**Ast. i. 3. 07. Seven glass beads;** flat spheroids, blue and green. *c.* ⅛" diam.

**Ast. i. 3. 012. Thin silver (?) plates,** two crescent and five pear-shaped; drilled for threading. Parts of ornament. Corroded and brittle. Crescents *c.* 1⅛" across. Pears *c.* 1⅛"–1" × ⅞". Pl. LXXXIX.

**Ast. i. 3. 013. Thin strip of plain gold.** $1\frac{7}{16}" \times \frac{3}{16}"$.

**Ast. i. 3. 014–18. Five pottery food bowls,** rough grey ware, some containing traces of food inside. Outside painted in tempera; 014, black ground divided into four by thin red lines, each division petal-shaped; red streak in centre of each petal rises from bottom edge, surrounded by carelessly painted red line, and a row of seven white spots (pearls). Upper flat edge, red; inside plain. The others are variations of same pattern. Av. diam. 3¾", height 1⅝". Pl. XC.

**Ast. i. 3. 019–20. Two pottery food bowls;** same shape, ware, and decoration as Ast. i. 2. 04, but without band of pearls below rim. Insides painted light grey with red band round rim. 020 broken (now put together). H. 3½" and 3⅛", diam. at rim 6⅜" and 6".

**Ast. i. 3. 021. Wooden duck,** as Ast. i. 1. 012, Pl. CIV. Style, attitude, &c., exactly the same (for slightly different, cf. Ast. i. 2. 06, Pl. CIV), and careful workmanship; but half of bill lost and tail chipped. Feathers indicated solely

by black lines on red; head and eye black with light poll and cheeks; bill red. Length 5⅝", gr. width 2⅝", H. to crown of head 2⅛".

**Ast. i. 3. a. 01. Fr. of figured silk.** Fr. from face-cover. Large pattern of 'Sasanian' type. Upper L. corner of medallion surrounded by buff pearls on dark-blue ground; part of square at north point visible; five pearls in quadrant.

Within on buff ground a stag's head facing to centre with long branching yellow antlers tipped with green and yellow ear. A finely drawn 'chestnut' tree in centre, with green and yellow leaves and buff flower cones. Outlines dark blue. Spandrel, green rosette on buff ground surrounded by twenty yellow pearls on dark-blue band. Outside these linked elaborate palmettes in buff, yellow, green and dark blue with buds between, on yellow ground; the blue and green outlined buff, the buff and yellow outlined with dark blue.

Twill weave. Very fine work. Cf. spandrel in v. Falke, *Seidenweberei*, i. Fig. 110. For tree, cf. Bodhi tree in *Th. Buddhas*, Pl. X, Ch. liii. 001; for head of stag, *ibid.*, Pl. XLVI, Ch. 00373. Inner diam. of circle prob. 8". 5⅜"×5⅜". Pl. LXXIX.

**Ast. i. 3. a. 02. Frs. of plain blue silk frill,** from Ast. i. 3. a. 01. Plain weave. Very fragile.

**Ast. i. 3. a. 03. Frs. of silk** from Ast. i. 3. a. 01, Pl. LXXIX. Plain weave. Snuff colour. Very fragile.

**Ast. i. 3. a. 04. Silver (?) spectacles** from face, with portions of snuff-colour silk face-covering. For description, cf. Ast. ix. 2 b. 09. Edges not drilled. Very fragile. For other examples, see Ast. i. 3. b. 03, 5. 04, 5. a. 02, Pl. LXXXIX. 6¼"×1¾".

**Ast. i. 3. b. 01. Figured silk face-cloth,** of two pieces joined. Pattern of 'Sasanian' type; stylized grape vine springing from label of five roundels. The vine is bisymmetrically scrolled and has usual border of pearls with oblong at each cardinal point. Stems dark yellow, leaves green, veined with yellow. Ground colour perished, leaving brown warp. Ground of border originally dark blue.

Twill weave. In the dust accompanying cloth are frs. of gold leaf and copper. Perished. Cf. Ast. i. 1. 01. 8"×5".

**Ast. i. 3. b. 02. Silk damask,** small oblong case of, rounded at one end, containing lead. Perished. 1¾"×1".

**Ast. i. 3. b. 03. Pair of silver spectacles,** from face of corpse, with debris of yellow silk adhering to them. Made in one piece, of thin silver plate, and consisting of two fine pear-shaped shields to cover the eyes, joined by straight band (bridge); the whole bent in convex curve from tip to tip.

Shields have flat rim of about ¼" width, and rims and bridge are pierced at intervals of ¼" to 1" with small holes $\frac{1}{16}$" in diam., for sewing on of silk binding (as seen in i. 3. a. 04, 5. 04, &c.). Inner portion of shields is raised and pierced with similar closely set small holes like head of pepper-pot.

Good condition; silver corroded on surface in parts, but hard. For others, see Ast. i. 3. a. 04, 5. 04 (small size), 5. a. 02, 6. 07; ix. 2. b. 09. Length tip to tip (as curved) 5⅜", gr. width of shields 1$\frac{13}{16}$". Pl. LXXXIX.

**Ast. i. 4. 01. Turned wood crater-shaped jar,** solid nearly to mouth where depression is left for contents (now missing). Painted with distemper, black, with circles of dots round shoulder and decoration similar to Ast. i. 1. 03, *q. v.* Much defaced. Diam. 5½", height 4½".

**Ast. i. 4. 02, 08. Two turned wooden globular jars.** Solid, with shallow depression within wide mouth. Traces of painted decoration as Ast. i. 1. 03. *c.* 5¼" (H.)×5⅝".

**Ast. i. 4. 03–7, 013. Six turned wooden bowls,** solid with shallow depression at mouth decorated as Ast. i. 2. 04, Pl. XC, but without the band of pearls below rim. 03, 06, 07 broken at lip. *03*, diam. 5½"×3¼"; *04*, 3⅞"×2⅛"; *05*, 4⅝"×2⅛"; *06*, 4"×2⅜"; *07*, 4⅞"×3¼"; *013*, 5¼"×3¼".

**Ast. i. 4. 09, 011. Two pottery jars,** stamnos-shaped, without handles, roughly made, painted in distemper as Ast. i. 1. 03. 09, 4⅞"×4¼"; 011, 3⅞"×3⅜". Pl. CIII.

**Ast. i. 4. 010. Pottery food bowl,** roughly made, grey body, painted in distemper outside as Ast. i. 2. 04, Pl. XC. Inside rim roughly painted red. Diam. 6", H. 3¼".

**Ast. i. 4. 012. Pottery fr.,** in form of short leg and hoof, with rough incised lines indicating toe divisions, and two transverse incisions, the lower perhaps indicating line of nails or joints, the upper round roots of toes. Above this a band of six circles with centre dots made with centre-bit. A pointed projection in front surrounded by similar circles. Broken above ankle. Painted black after burning. H. 3½", length of sole 2⅝", width of sole 1¾". Pl. XC.

**Ast. i. 5. 03. Figured silk face-cloth,** 'Sasanian' type, from face of body *a*. Whole centre occupied by a finely designed boar's head, mouth open and tongue slightly protruding. Both tusks shown, and lower teeth drawn to distinguish between molars, canine, and incisors.

Eye large and encircled by double yellow line, the outer throwing off two parallel descending lines to snout, and suggesting whiskers. Below eye a circular spot of two shades of dark green, the lighter in centre. Lower lip has the same two greens, suggesting light and shade. Face generally dark blue, with rectilinear patches of yellow, extending inwards from outline, on chap, snout, above ears, and under lower jaw.

A ruff of straight-lined hatching encircles neck. All very stylized and angular, and a most powerful piece of design. The usual pearl border, with five discs or pearls in each quadrant, has pearl rosettes at cardinal points instead of the usual rectangular blocks.

It is probable that the colouring has changed, being now confined to buff, yellow, blue, and green. Twill weave. Finely preserved; cf. Ast. i. 6. 01. For a closely

resembling design, see the painted border of a Toyuk cave-shrine, Grünwedel, *Kultstätten*, p. 331. 8" × 9". Pl. LXXVI.

**Ast. i. 5. 04. Silver spectacles.** Similar to Ast. ix. 2. b. 09, but better made. Very fragile; broken across bridge. Small frs. of silk adhering. For others see Ast. i. 3. a. 04, 3. b. 03, 5. a. 02, 6. 07. $5\frac{7}{16}$" × $1\frac{1}{2}$". Pl. LXXXIX.

**Ast. i. 5. 05. Silk frill,** and other perished plain frs. from Ast. i. 5. 03.

**Ast. i. 5. 06. Cord of closely plaited fibre,** very brittle, dark brown. Resembles modern mohair shoe-lace. Perished.

**Ast. i. 5. 07. Fr. of wooden comb,** with finely cut teeth and semi-elliptical back. $2\frac{1}{4}$" × $1\frac{3}{8}$" × $\frac{3}{16}$".

**Ast. i. 5. a. 01.** (*a*) **Figured silk band.** Colour almost entirely faded. Double lines of squares, or oblongs placed corner to corner diagonally, run diagonally R. and L. across cloth, forming a lattice-work. In each lozenge-shape space a cross, the long limbs thin (lengthwise in lozenge) and the short thick. Arms are terminated by stepped lozenges. Ground probably pink, now all faded to dark buff, and pattern to brown. Size of lozenge spaces about 3" × 5". Very fragile. Length *c.* 17". Breadth 4".

(*b*). Lining of thin plain silk, and thick evenly woven silk fabric of yellow ground, with single and double bands of pink across fabric, in both directions widely spaced. Complete pattern not present. Fr. with Ast. i. 5. a. 02 shows broad band of pink the end of which is a double scallop. From junction of scallops runs a straight stem of buff, cutting band lengthwise, and opening out into angular double battle-axe shape. Length 12", breadth 7".

(*c*). Pale green silk lining, very faded, damask. Pattern fragmentary, but of type related to *Ser.* Ch. 00118 and T. xv. a. iii. 0010. An arcading of cloud scroll, narrow and high, meanders across fabric. The scrolls are hexagonal and three deep at top of arch, changing to two and then to one row as the arch turns down. From corner rises a fret pillar, on each side of which a pair of confronting erect beasts, whose bodies appear to turn up over their heads.

Under arch is a form which may be a standing human figure, to front, but is more likely a floral form. Below the downward loop of meander is a fret column and between each pair a downward-pointed chevron band of hexagonal scroll. The chevron thus runs across material below meander, the points opposed to the bends of the latter.

Below each downward point of chevron, and filling space between pillars, is a kidney shape in outline, from which rise six straight filaments, the two outside ones turned outwards into hexagonal spirals.

The complete pattern is not present, but there is sufficient to make out the general scheme, which is very interesting, especially in its obvious common origin with the examples quoted while including many bold variations. The ogee of the former is absent, but the chevron may be considered as the pattern of the second plane in its stead. Very fragile. Largest piece $7\frac{1}{2}$" × $3\frac{1}{4}$". Pl. LXXXIV.

**Ast. i. 5. a. 02. Silver (?) spectacles,** as Ast. i. 3. b. 03, &c., but large and clumsily shaped. Shields a wide oval, tips lost. Spectacles bound with buff silk which seems to have been held on by the help of small wooden pegs inserted through holes round edges.

On top remains of covering of several layers of silk, which has taken mould of spectacles; upper layer dark green, lower buff; pierced where shields are pierced (to allow the dead to see ?). Detached remains also of thick figured buff silk, as Ast. i. 5. a. 01. b, of which it furnishes a further portion of pattern. Length (incomplete) 6", gr. depth $2\frac{3}{4}$". Pl. LXXXIX.

**Ast. i. 5. b. 01. Frs. of figured silk face-cloth;** nearly all crumbled to dust. Portions distinguishable show parts of circular pearl-bordered medallions with squares at cardinal points and five pearls in each quadrant. Within medallion a 'tree' and confronting birds of Sasanian motif. The circle appears to represent a pond, the 'tree' a marsh mallow. Animals, swans, with elaborate tails and slightly uplifted wings.

R. and L. of mallow head is a floating disc with trailing roots, frequently used in Chinese decoration. Circles almost touch horizontally. In spandrel above there appears to be a flying crane.

Colouring uncertain, now blue and buff. Warp-rib weave. Design and weaving appear to be Chinese. Frs. of coarse lining. Size of patterned piece $5\frac{1}{2}$" × $4\frac{3}{4}$". Very fragile. Pl. LXXIX.

**Ast. i. 6. 01. Fr. of figured silk,** from face-cover, being ear, part of cheek and part of ruff, with adjoining pearl border, of boar's-head pattern similar to Ast. i. 5. 03, Pl. LXXVI, but smaller. Fine twill weaving. All colour but blue faded to buff. $4\frac{3}{4}$" × $2\frac{3}{4}$".

**Ast. i. 6. 02. Mass of frs. of silk** (from body *a*) and dust of painted buff shroud. Colours used, red, white, black. Too fragmentary to reconstruct.

**Ast. i. 6. 05. Human hand.** R., from body *a*, with fingers doubled, clasping small cylindrical piece of wood wrapped in silk, of which frs. remain. Hand complete with two nails and some bones of wrist, but dried and shrivelled to skin and bone. Scraps of buff silk adhere to knuckles; below are remains of coarse buff hemp (?) cloth.

Wooden cylinder slightly waisted, and pierced end to end lengthways by small hole; cf. Ast. i. 6. 06, Pl. C. Hand (as doubled) $4\frac{3}{4}$" × $2\frac{1}{4}$"; cylinder (length) $3\frac{3}{8}$", gr. diam. $1\frac{3}{16}$".

**Ast. i. 6. 06. Wooden cylinder,** as in hand Ast. i. 6. 05. Slightly waisted, with $\frac{1}{8}$" hole pierced from end to end. Wrapped round middle with band of much-decayed figured silk, sewn either side to fine buff silk (perished).

Figured silk woven with fine stiffened warp, and thick soft weft, in large twill; all-over diaper of concentric lozenges. Weft ordinarily buff, but band of indigo, $\frac{3}{4}$" wide, runs across middle of fabric, irrespective of pattern. Cylinder (length) $3\frac{1}{4}$", gr. diam. $1\frac{1}{4}$". Pl. C.

**Ast. i. 6. 07. Pair of silver (?) spectacles,** as Ast. i. 3. b. 03, &c. Fine pear-shaped shields, with well-raised centres; very small pierced area. Silk binding has disappeared. Condition good, though bit of edge of L. shield lost. For others, see Ast. i. 3. a. 04, 3. b. 03, 5. 04, 5. a. 02; ix. 2. b. 09. Length 6$\frac{5}{16}$", gr. depth 2¼". Pl. LXXXIX.

**Ast. i. 6. 08. Inscribed burnt clay slab** from entrance to tomb. Square; face painted light blue with narrow vermilion border, and divided by nine equally spaced vertical and horizontal lines in white into hundred small compartments. In each is Chin. char. painted in vermilion over white, the vermilion having in places worn off; cf. M. Maspero's App. *A*. Condition generally good. 14¾" sq., thickness 1¼". Pl. LXXV.

**Ast. i. 7. 01. Printed silk fr.**; primrose yellow, with pattern of large and small rosettes in green-blue and pink with blue-green stems and leaves. Two main pattern-blocks seem to have been used, both on square plan (or square and hexagon), the effect being an 'all-over' pattern.

Two pieces joined; plain lining. Very fragile. 18" × 9". Pl. LXXXII.

**Ast. i. 7. 02. Fr. of basket-work**; plain slewed grass weaving. Stakes of string; fine even work. Piece of yellow damask silk adheres to one side. 4½" × 3". Pl. XCIII.

**Ast. i. 7. 03. Fr. of silk damask**; bronze colour, with pattern of flowers, leaves and birds, on ogee plan. From a pair of flying cranes two stems spring R. and L., opening out and closing in again at their tips forming the ogee. Where one pair meets the outward curve of the next, R. and L., is a bunch of flowers. Small thin leaves are thrown out on both sides of stems throughout their length. Finely woven.

At back padding silk wool, dyed same colour. Very brittle. 8" × 3½". Pl. LXXXIV.

**Ast. i. 7. 04. Silk gauze,** yellow, of small lozenge pattern; resembling *Ser.* iv. Pl. CXX, Ch. 00344. Well woven. Largest piece 27" × 9½". Pl. XXXVI.

**Ast. i. 7. 05. Frs. of silk damask,** in yellow and pale green. Pattern, a lozenge jewel with pendent pearl cluster ornaments hanging from lower and two side angles; two confronting geese with uplifted wings above, supporting rosette surrounded by five leaves, rayed. Pattern repeats as a 'drop', and small features link up main elements. Good design. Twill weave. Plain green lining. Very brittle. Largest piece *c.* 20" × 8". Pl. LXXIX.

**Ast. i. 7. 06. Frs. of figured silk,** discoloured to a fine brown; probably part of waist-band. Pattern, alternate rows of large and small rosettes, the small occurring opposite spaces between the large.

Large rosette is composed of four pairs of brown reversed **C** scrolls set on a circular plan, the outer ends voluted and the inner meeting in a thickened mass and opening again to carry on each end a curved leaf. Between volutes, a three-pointed green bud with brown calyx. In centre on brown ground a six-petalled flower with blue petals, crimson centred, outlined yellow.

Smaller rosette is a variation of the larger. Silk wool padding at back, and plain silk lining. Three edges neatly turned in and sewn, the fourth broken away and missing.

Very brittle. For general type, cf. *Ser.* ii. pp. 972 sq., Ch. 00171, 00181; iv. Pl. CXI, CXVI. A. Largest piece 4¾" × 6".

**Ast. i. 7. 07. Stucco head of demon,** with oblique bulging eyes, prominent frowning brows, aquiline nose, small mouth with thick upper lip, normal ears, bushy fringe of hair over forehead, rest of head shaven. Flesh pink, moustache and thin lock of hair hanging in front of each ear, painted in black (not moulded). Eyes outlined black, with white balls and black centres.

Brown clay with fine fibre, and wooden core. Ears damaged and lower back part broken. Well modelled. 4½" × 2½" × 3". Pl. CIII.

**Ast. i. 7. 08. Fr. of painted wooden model house**; flat piece, painted with two-leaved door (orange) studded with rows of black nails and having black ring-handles. Cf. *Ser.* iv. Pl. LXXV, Ch. xlvi. 007. Adjoining part of wall, above and at sides, white; within orange frame studded with white; beyond, emerald green with black spots. Red-flowering plants painted growing up wall. 3½" × 4½" × $\frac{3}{16}$". Pl. XCIV.

**Ast. i. 7. 09, 010. Two wooden railing posts,** rectangular in section. Upper parts square pyramidal with vertically concave sides and chamfered corners, supporting on their truncated tops square caps with chamfered lower edges.

Posts are slit up from bottom to base of pyramid to take connecting slabs. Width of slits *c.* ⅜". 09 retains fr. of slab (?). Painted red on front side, and on adjoining sides as far as slit; dabs of red, green, and white on one inside surface next slab. Height 3½", width *c.* ⅞". Pl. XCIV.

**Ast. i. 7. 011. Fr. of miniature wooden pedestal,** similar to Ast. iii. 4. 052, but to larger scale. Upper 'cusped' portion of one side only, broken off at one end. Instead of true cusps the form is a flat ogee. Face green edged on ogee curves with white. Soffit vermilion; other surfaces plain. Intact end cut to plain mitre for joining to side. 5½" × 1" × ⅝".

**Ast. i. 7. 012, 013. Two wooden railing slabs,** painted white on outside, with upper border red. Two drifting palmettes in blue and green with black centres and red outlines painted on the white. Inside plain red. For other examples, see Ast. iii. 4. 027, 056–9, Pl. XCIV. 3" × *c.* ⅞" × *c.* $\frac{3}{16}$".

**Ast. i. 7. 014. Clay humped bull**; standing; well modelled. All legs lost, but straight stick core of L. foreleg remains; clay horns and tail also gone; otherwise in good condition. Painted pale blue, with pink muzzle, dewlap, and inside of ears. Large eye, slightly moulded, and painted white with black pupil and socket. Small double black

wrinkles also painted round eye, at corners of mouth, and behind nostrils, which are marked by holes. Surface of face somewhat damaged. H. 8¼", length 8¼". Pl. CIII.

**Ast. i. 8. 01. Fr. of figured silk.** Rosettes (lotus), now buff on darker buff ground, with vertical stems in blue. Faded and fragile. 3½" × 3½". Pl. LXXXVII.

**Ast. i. 8. 02. Fr. of figured silk border.** On twilled yellow ground, six-petalled blue rosettes in row, outlined pale yellow, between border lines of green, brown, and shaded blue. An outer guard of brown with round yellow spots. Well made; brittle. *c.* 7" × 1". Pl. LXXVIII.

**Ast. i. 8. 03. Five frs. of figured silk border,** similar to Ast. i. 8. 02, but ground light blue with buff flowers. Weaving less good. Material to which this is border, and of which small portions remain, is yellow-green twill. Three frs. are sewn along edge in basting stitch with green silk thread. Colours dull and faded. Av. length 3", width of pattern 7/8".

**Ast. i. 8. 04. Fr. of canvas,** painted in thick tempera, probably in imitation of brocade. Ground shaded brown with oval spot pattern of small green leaves and red buds. Material of paint very finely ground. Appears to have been arranged in folds as a swag before painting. 10½" × 3".

**Ast. i. 8. 05. Small pair of steel scissors,** made in one piece like modern Indian shears. Blades shaped as ordinary penknife blade; handle (which forms spring) of square wire crossed over from side to side forming circular loop. The temper of spring still remains.

Rusted, but well preserved. Wrapped round blades, a piece of dark crimson silk with small rosette spot pattern in light yellow. Also piece of dark buff silk with lighter pattern printed by 'resist' process. Length of scissors 4"; blades 2 3/16" × ½".

**Ast. i. 8. 06. Head net,** made of open-mesh string canvas, with remains of black pigment all over. 8" × 2".

**Ast. i. 8. 07. Fr. of plain white silk,** from shroud. Discoloured and perished. 16" × 11".

**Ast. i. 8. 08. Stucco head of woman,** in round, from large fig., well modelled. Young and full, with oblique eyes, long straight nose, very short upper lip, and upcurved mouth deeply dented at the corners. Small chin, from which 'double' chin slopes away into fat roll of neck.

Face painted white, with traces of red on lips, and large elliptical green patch on forehead. Remains of black lines under eyelids and carried almost as far as hair. No other remains of additional colour on cheeks and eyes.

Hair painted black, finely grooved all over in long upward lines from face and nape of neck. Hair taken off forehead and temples in 'pompadour' flattened on top, and done on crown in topknot (lost). Two crescents, red and green, painted on 'pompadour', off L. temple, and another, white, on back of head. Ears thick and clumsy shaped. Soft buff clay mixed with straw; large hole for core (lost). H. 7½" × gr. width 5½". Pl. CI.

**Ast. i. 8. 09. Small dough man;** standing upright with joined hands hanging before him. Very roughly modelled, ending at knee level in bifurcated rounded mass. Topknot on head, and holes punched for eyes. No indication of clothes. Dark-brown, close-textured material. H. 3". Pl. LXXXIX.

**Ast. i. 8. 010. Straw man.** Long thin fig. made of bundle of straw doubled at head and divided below to form legs. Smaller bundles form arms. No attempt to make features, &c. Dressed in long-sleeved coat of dark-brown woollen (?) canvas, tied with silk band round waist; ragged under-coat of buff silk, with felt padding within, over upper part of body. Length 2' 9", average width 3" to 4". Pl. XCI.

OBJECTS EXCAVATED IN TOMBS OF GROUP ii

**Ast. ii. 1. 01 + 03. Frs. of painting on paper.** The parts present are of two sheets, each 16½" × 10" (nearly), pasted together at two of their short edges. The subject appears to be rather similar to that of Ast. vi. 3. 05, but with less of incident.

To L. of centre a personage in voluminous robes kneeling on rug and facing ¾ to L. She holds in her raised R. hand a black crescent-shaped object and in L. a slip of paper (?). To the L. and facing first a second figure (lower part missing) holding out in L. hand a circular black object with light centre. To R. of first figure an object like a towel-horse with an elongated top bar over which is draped a heavy striped cloth, the colours being brick-red, white, green, and dark grey. Farther to the R. is a standing attendant and at extreme R. another, both looking to L.

In the space between these two a rectangular-topped table with red centre and broad black border (lacquered ?). At each end a leg composed of three vertical bars bending over towards the table-top at upper ends and resting at their lower ends on a rail which forms a continuous foot for all three. Vertical bars red, feet black.

In centre of table stands a black cauldron having three 'fish-tail' feet. A ladle with hook handle (similar to Ast. ii. 1. 07, Pl. CIV) rests inside cauldron. Above table are two large squat jars, dark grey with red interiors. Below are three smaller and thinner jars drawn in outline only. Above and immediately to L. of head of R.-hand figure is a tray with 'fish-tail' handles exactly resembling Ast. 01, Pl. XCI.

Coiffure the same in all four figures. The hair seems to be smoothed solidly on top and in a sort of flattened chignon at back reaching to nape of neck. On top two thick solid tresses are looped R. and L. resembling a large bow. From each loop rises a thin black line (hair ?) curving outward and downward. From each side of face just in front of ear a similar line descends nearly to shoulder and then curves up in direction to meet an upper one, the two on each side having a wing-like effect.

Costumes are of Kimono type with very large sleeves and in longitudinal bands of green and red. The seated figure and that to extreme R. have a series of three projecting points behind each shoulder suggestive of threefold capes. Each figure has an undergarment visible at neck, where it fits closely just below chin level.

Whole drawn in black line with red touches on faces to indicate the assisted complexion of the period. Work rapid and careless. The paper is coarse, laid, and is torn away at lower part of first and third figures from left. Painting was continued on farther paper to L. Length 32"; width 10". Pl. CVII.

**Ast. ii. 1. 02. Small fr. of painted paper** with rough scrolls in grey, prob. representing foliage. Thin and flimsy paper. Also two frs. of plain paper, one cut to lozenge shape. 3¼" × 2". Lozenge 4¼" × 3", 3⅞" × 2 7/16".

**Ast. ii. 1. 04. Five miniature flags.** Five long flexible twigs with bark left on, and lozenge-shaped scraps of silk (red, green, or buff) tied to them corner-wise at intervals with green silk yarn. Silk much decayed. See also Ast. ii. 1. 05, 2. 02. Length of twigs c. 2' 2", diagonals of lozenge c. 4¼" × 2".

**Ast. ii. 1. 05. a–c. Three lozenge-shaped pieces of paper,** found with twig flags Ast. ii. 1. 04, and apparently bound to twigs like the silk lozenges but now detached. (b) and (c) show crumpling at one 'long' corner, as where tied. See also lozenge-shaped fr. under ii. 1. 02. Paper thin, light buff, laid; glossy on one side. Diagonals of lozenge 5" × 3".

**Ast. ii. 1. 06. Wooden fig. of man,** standing, dressed in long wide blue trousers, black shoes, and white jacket **V**-shaped at neck, tied with black band under arms. Latter are made separately and attached by pegs; the forearm out at right angles to upper arm in each case, and hand carved as doubled fist with hole pierced through horizontally in L. hand and vertically in R. Arms were so attached to shoulders that R. upper arm was held out straight from shoulder and forearm raised, while L. upper arm hung by side and forearm was held out horizontally.

Head is round, with black hair done in two round balls behind ears. Face flat, broad at temples and pointed at chin, with straight nose and slightly oblique eyes. Painted white only, with black for eyes and mouth. Fair condition, rough work. H. 7". Pl. CIII.

**Ast. ii. 1. 07. Wooden ladle,** cut in one piece, with egg-shaped bowl and handle springing from it at oblique angle and making hook-shaped curve. Characteristic Han shape; cf. Ying. III. 2. 010, Pl. CX, also painting Ast. ii. 1. 01, Pl. CVII. Handle has been broken and mended in antiquity with peg. Bowl discoloured by decayed food. Roughly carved. Length (measured straight) 8¼", bowl 3" × 2¼". Pl. CIV.

**Ast. ii. 1. 08. Oblong piece of wood,** thickened at one long edge, the thick part extended in approx. square section beyond oblong for a length of 2¾". Across extension and close up to side of oblong is cut a transverse groove 3/16" wide and ¼" deep; through floor of this groove a small hole. Hole drilled through extension near its end, parallel to short edges of oblong. Two edges of extension are chamfered. On outer edge of thick portion of oblong are three holes at intervals of 1¼" to 1½", two retaining wooden dowels.

One side of oblong is painted buff, but across centre, the short way, is plain band c. ⅜" wide, while another piece of wood was joined by means of a dowel, for which the hole remains c. 1" from thickened edge. The thick edge, which on this side is flush with surface of oblong, is also unpainted, as also the end edge near extension, in centre of which is dowel hole evidencing the junction of another piece.

On reverse surface is pasted a piece of blue and white printed silk like Ast. ii. 1. 020, which covers part of thickening and part of oblong. Piece is evidently part of some built-up object of which the other parts are missing. Extension broken through groove. Size of oblong 6" × 3⅜" × 5/16"; thick part ½" square.

**Ast. ii. 1. 09. Shaped wooden stick,** perhaps part of model carriage. Sq. in section, and very smoothly trimmed, with groove ⅛" wide and 3/16" deep cut across one face 3" from one end. Long face on other side of groove painted light blue, and one adjacent side pink; remainder unpainted. Small peg-hole in bottom of groove, not pierced through. At end near groove a tenon is cut rounded at one corner, and fitting mortice of one end of Ast. ii. 1. 010. Pl. XCIV. At end far from groove it is cut down sq., leaving round peg flush with back. For identical piece see Ast. ii. 2. 013, which fits other mortice in Ast. ii. 1. 010. Length of whole 8¼", thickness of main portion 7/16" sq.

**Ast. ii. 1. 010. Shaped piece of wood,** perhaps from model carriage. Long flat strip, one edge terminating in sq. corner at each end, the other in rounded corners. Mortice ¼" deep, into which fit tenons of Ast. ii. 1. 09 and Ast. ii. 2. 013, cut horizontally in each end; and knot-hole (passing across groove) through one rounded corner. Remains of cream and blue silk in hole; and one broad surface of whole strip, and edge with rounded corners, covered with red and buff printed silk as Ast. ii. 1. 015. 8¾" × 1¼"; thickness 3/16". Pl. XCIV.

**Ast. ii. 1. 011. Wooden leg of cow or bull;** very roughly cut, with long upper portion oblong in section above hock. Lower part very rudely rounded and painted black. Paint lost, or cut away, from hoof, which however shows cleft. Upper end cut chisel shape, with remains of black paint on bevel, and of fine pink clay (without paint) on outer face of upper part and in crevices at side. No peg-hole for attachment to wooden fig.

Perhaps from clay fig. with wooden legs; upper part of legs running up through body in manner of core and helping to support the clay. This would account for the patch of paint on upper end, which must have reached upper surface of body. Length 6¼".

**Ast. ii. 1. 012–13. Two wooden wheels** from miniature carriage. Rims only remain and three spokes of 012. Rim high and narrow, with outer circumference bevelled on each edge. Spokes, originally ten in number, are thin flat slips of wood fixed edgeways into grooves cut across back surface of rim.

The whole painted black, with decoration on outer face of rim in red, white, and blue. Design consists of double chevron band; each triangular space treated as an acanthus leaf, with three short white veins, from inner and outer edge of rim alternately, filling triangles so formed. Outer circumference of wheel 7¼", inner 5¼", thickness ½". Pl. XCIV.

**Ast. ii. 1. 014. Fr. of padded garment,** from breast of corpse. Made of patchwork of thin silk, padded with silk waste, and lined with buff canvas. Remains of patchwork show frs. of plain plum-coloured silk, and of red and blue printed silk, the same as Ast. ii. 1. 015 (*q. v.*). *C.* 19" × 15".

**Ast. ii. 1. 015. Frs. of printed silk** and of thin plain buff silk. Printed silk shows red or blue ground, and 'resist' pattern of repeating rosettes, formed of circle of seven circular spots round central spot, with larger single spots between. Much decayed. Gr. fr. 14" × 10".

**Ast. ii. 1. 020. Pair of miniature cuffs or sleeves** from miniature garment (?). Neatly made in double buff canvas, like small Kimono sleeves, with bands of printed silk covering outer ends, and remains of printed silk (detached). Garment prob. of silk and canvas only lining.

Silk printed by 'resist' with blue ground and pattern of spot rosettes similar to Ast. ii. 1. 015; but rosettes are here separated by crossed diagonal lines of small spots forming regular lozenge lattice-work with larger spots at crossings. Sleeve length 2¾", width 2½" to 2¾".

**Ast. ii. 1. 021. Fr. of small padded bag or cushion.** Pointed fr., cover made of small patchwork of printed silks, brown, red, and blue, of same pattern as Ast. ii. 1. 015, and stuffed with silk waste. Gr. M. 3".

**Ast. ii. 1. 022. Pair of model shoes of figured silk.** Made in three pieces, sole, uppers, and band round ankle. Sole made of four layers of fine canvas; uppers of two layers of canvas and outer layer of figured silk with narrow binding of green silk between it and ankle-band; latter of figured silk only, upper edge raw. Remains of green silk binding also round edge of sole of one.

Figured silk in warp-rib weave, with crimson ground and pattern in white, buff, and yellow. Pattern (very fragmentary) seems to consist of much conventionalized wyverns with waving tails repeating across material, interspersed with large angular cloud scrolls, lozenge-shaped yellow quatrefoils, and small square white ones. Soles 3¾" × 1". Pl. XCIII.

**Ast. ii. 1. 023–6. Four wooden pegs** with face rudely drawn in ink at top and Chin. chars. below; cf. T. XXII. d. 027, Pl. XLVII, &c. (*q. v.*), and *Ser.* ii. p. 767, T. 002, &c. Pegs flat, with short point at head and long tapering point at bottom. No signs of wear. Chin. chars. the same in all; long wavy ink line down back. Lower half of 026 lost. Length 6" to 6½". Pl. CIV.

**Ast. ii. 2. 01. Lacquered tray,** similar to Ast. 01, Pl. XCI, but colour black only. Broken into many pieces, mostly re-joined. Made in two halves, and now separated. No canvas under lacquer. Very badly damaged, perished and soft. 18¾" × 13¼".

**Ast. ii. 2. 02. Seven willow twigs** with frs. of thin silk muslin attached. Prob. flags or banners. Also frs. of willow twigs and muslin. Very fragile. Gr. length 22½".

**Ast. ii. 2. 03. Piece of sheet bronze,** doubled over fr. of lacquered wood and riveted through. Belongs to Ast. ii. 2. 021. 1¾" × 1¾".

**Ast. ii. 2. 04. Fr. of wooden comb** with elliptical back. Roughly made. 2½" × $\frac{3}{16}$".

**Ast. ii. 2. 05. Wooden fig. of woman;** roughly blocked out in three parts only—head, body, and skirt. Body cut perfectly circular, and flat down front, presenting disc-like appearance; on this the arms were prob. painted, with hands folded over waist. Features also are only painted on face, in light blue, like hair, which shows curved top-knot in long ridge on crown. Skirt portion a solid mass, segmental in section, widening towards foot, and painted in wide stripes of blue and white. White mostly lost, as from body, which apparently was covered with it. H. 9¼", width 3", thickness 1¾". Pl. CIII.

**Ast. ii. 2. 06. Wooden fig. of man,** roughly carved in style like preceding, with blue tunic close fitting at waist reaching to knees, and white under-robe reaching to ground. Arms in this case made separately and attached by wooden pegs to shoulders; painted blue, as covered by long sleeves of tunic. No hands carved, but narrow end of R. arm shows slanting hole with remains of wooden peg for attachment of some object.

Vertical long narrow head, flat on top, painted over all blue for hair; features also painted in blue with long moustache and straggling beard. Arms just slightly bent at elbow. H. 9¾". Pl. CIII.

**Ast. ii. 2. 07. Wooden fig. of man,** roughly carved in same style as preceding; but lower portion here cut away in middle to indicate legs in long blue trousers, though feet are not carved. Arms again attached separately by pegs. Tunic painted white. Head long and narrow, tapering upwards in long point which is cut flat at extremity; in flat space a small hole in which are remains of feather. Features painted in blue, with moustache and beard. H. 10".

**Ast. ii. 2. 08–10. Three wooden legs of cow or bull,** standing; pair of forelegs and R. hind leg. Inner surface at top unpainted, cut flat, and two pegs driven through each for attachment to body. Remainder painted white, with line of black 'herring-bone' down middle of front, and blue hooves. Length (forelegs) 5¾", (hind leg) 6¼".

**Ast. ii. 2. 011. Shaped piece of wood**; resembling Ast. ii. 1. 010. Flat strip with one long edge straight, the other slightly arched. For ½" from ends wood is cut away entirely on straight side to depth of ¼"; remainder of end cut into tenons one-third of orig. thickness. Traces of white paint. Length 9½", gr. width 1¾", thickness ¾".

**Ast. ii. 2. 012. Strip of wood,** cut sq. at edges and ends. Band of blue paint along one edge, on wide face; three black lines on thickness adjoining blue divide length into four equal spaces. 8" × 1⅜" × 5/16".

**Ast. ii. 2. 013. Shaped piece of wood,** exactly like Ast. ii. 1. 09, and of same size. Length over all 8⅞".

**Ast. ii. 2. 014. Piece of wood,** oblong in section, tapering slightly towards one end, broken at other. Painted all over red, with wavy black line down each wide face, and light green spots in hollows. Narrow faces painted with black cross-lines alternating with light green. 7⅝" × 1 5/16" (gr. width) × ¾".

**Ast. ii. 2. 015. Four wooden sticks** tied together with frs. of hemp (?) rope. Natural sticks split in half lengthways and bark stripped off; one pointed at each end; two others broken and broken ends laid over each other in antiquity and bound with string. Average length 2', and thickness 5/16".

**Ast. ii. 2. 016. Shaped piece of wood,** sq. in section, with projection, ¼" high and c. ⅞" long, left at each end on one side. Immediately within these projections ¼" hole is bored through stick, and in one remains wooden peg. Round tenon of Ast. ii. 2. 017 fits empty hole, and faint depression on surface of 016 indicates the probable connexion of these two. The addition of a similar piece belonging to tenon still in other hole and the piece marked ii. 2. 011 would complete a four-sided frame. Length 10¾", average thickness ¾" sq.

**Ast. ii. 2. 017. Shaped piece of wood,** same as Ast. ii. 1. 09 and ii. 2. 013; except that end which in the other two has tenon is here cut as a mortice and fits tenon of Ast. ii. 2. 016. Peg also passes transversely through bar ⅝" from other end. No paint; cf. preceding object. Length of whole 9⅝" × 9/16" × ⅞".

**Ast. ii. 2. 018–20. Pair of wooden wheels,** from model carriage; like Ast. ii. 1. 012–13, Pl. XCIV. Incomplete; 018 and 019 prob. form about ⅓ of one rim, 018 retaining three spokes. 020 forms about ⅓ of rim of second wheel and has ends of spokes remaining in several grooves; burnt at broken ends. Rims high and narrow as in Ast. ii. 1. 012–13; painted black all over. Outer diam. c. 9", inner diam. 7½", thickness ¼".

**Ast. ii. 2. 021. Elliptical lacquered wooden bowl,** with ear handles. Typical Han shape as T. 01, Pl. XLVII, and *Ser.* iv. Pl. LII, T. vi. b. ii. 001. Large size. Lacquered plain black all over, outside over canvas, inside mostly directly on wood but over canvas for about ½" downwards from rim. One ear has broken off and been clamped on again in antiquity with piece of bronze sheet and rivets, but has again broken off. Ast. ii. 2. 03 is another piece similarly broken off and repaired. Length 8", depth 2¾", gr. width (with handles) 5½".

**Ast. ii. 2. 022–3. Pair of pottery tazzas**; wheel-made. Grey distempered with black. Wide shallow basin, with elegant outward and down-curving rim, short pedestal, and spreading foot. Rough work generally. Basins of both broken. H. 2⅝", diam. of foot 2¾", of basin 6". Pl. XC.

OBJECTS EXCAVATED IN TOMBS OF GROUP iii

**Ast. iii. 1. 01–12. One dozen pastry 'straws'**; plain straight bars like modern cheese-straws. Average length 3", diam. 5/16". Pl. XCII.

**Ast. iii. 1. 013–20. Pastry wafers**; thin, flat, apparently roughly triangular when complete. Seem to have been made of fine strips of pastry coiled flat; inner part in three spirals, with species of rayed border surrounding whole. 3½" × 2" × ¼". Pl. XCII.

**Ast. iii. 1. 021. Pastry tartlet,** in form of star-shaped flower, with five short pointed petals rising up round hollow centre, in which is decayed matter, evidently fruit (cf. iii. 2. 040–4). Well made. Excellent condition. Diam. 2". Pl. XCII.

**Ast. iii. 1. 022. Pastry tartlet,** in form of circular flower with eight long narrow petals rising from hollow centre (for fruit) as in Ast. iii. 1. 021; between each pair of petals a ridge of short erect close-set 'spines'. Both petals and rows of spines strongly convex. One petal made double by mistake. Hole through centre. Well made; excellent condition. For another, see Ast. iii. 2. 039. Diam. 2¼". Pl. XCII.

**Ast. iii. 1. 023. Pastry tartlet**; round, with hollow centre and raised fluted border. Plain. Hole through middle. Diam. 2". Pl. XCII.

**Ast. iii. 1. 024–5. Couple of pastry tartlets.** Circular, having funnel-shaped centres with hole at bottom; flat below. Sides turned over and moulded in form of downward-hanging petals (015 and 020), with high thin edges and deep hollows in middle of, and between, each petal. Tartlet from top therefore presents appearance of disc with edges closely serrated or foliated like under-side of mushroom. Remains of decayed fruit inside. Cf. Ast. iii. 2. 045, 046. Good condition. Diam. 1¾". Pl. XCII.

**Ast. iii. 1. 026–9. Bun**; round, well risen; divided into four by two cuts at right angles and interior sandwiched with some darker-coloured matter, probably fruit. Top ornamented with close-punched rows of holes. Diam. 3". Pl. XCII.

**Ast. iii. 1. 030–41. Pastry 'bow-knot' twists**; five complete and frs. of others. Each made of single rope of dough, twisted into pair of large loops, the ends inter-

lacing in knot in middle, and pinched off behind. See also Ast. iii. 2. 033–6. Average size 2¼″ × 3½″. Pl. XCII.

**Ast. iii. 1. 042–65. Frs. of pastry wafers,** as Ast. iii. 1. 013–20, Pl. XCII. Gr. M. *c.* 3″.

**Ast. iii. 1. 066–9. Four open-work pastry cakes,** or orns. of cake. Made, apparently in mould, of light flaky pastry, very brittle. Within ogee-shaped frame, sprays of foliage with scrolled ends curling about central midrib, with straight cross-bar at widest point. At bottom the two sides of frame are pinched together behind, giving convex form to orn. From surface of frame, sprays, &c., finely ribbed. Well made, and shape very elegant. 066 complete; 067 fairly complete but broken; 068 about ⅓ of whole; 069 in fragments. H. 3½″, gr. width 2$\frac{7}{16}$″. Pl. XCII.

**Ast. iii. 1. 070. Fr. of pastry tart,** showing part of edge 'nicked' into long seed-like projections, and of interior covered with decayed jam (?). Gr. M. 2″.

**Ast. iii. 1. 071–83. Pastry 'cracknels'** and frs. of the same. In form mostly of cubes or lozenges; 078 of flat bar shape. Very fine close dough, splitting into layers. 083, which is flat, shows mass of darker decayed substance, like 'jam' of 026–9 and 070, adhering to under-side. Average size (complete) *c.* 1″ cube. Pl. XCII.

**Ast. iii. 1. 084–7. Four pastry 'twists',** each made of short rope of dough coiled in close double knot. Excellent condition. Average size 1⅜″ × 1⅜″ × 1¼″. Pl. XCII.

**Ast. iii. 1. 088–93. Six black grapes,** shrivelled but otherwise in good condition. Gr. length ⅝″.

**Ast. iii. 1. 094. Frs. of pastry 'twists'.** Colour light brown. Well preserved.

**Ast. iii. 1. 095. Five pastry frs.,** thin, composed of narrow strips coiled into patterns on a flat surface. Colour light brown. Largest piece well preserved. 3″ × 1¼″ × $\frac{3}{16}$″.

**Ast. iii. 2. 01. Silk gauze;** lozenge pattern, sewn into form of tube and tied into knot at one end to form a kind of fool's-cap. Buff; stained and partially encrusted with paint. Good weaving, rather brittle. Similar to Ast. i. 7. 04. 17″ × 8″. Pl. XXXVI.

**Ast. iii. 2. 02. Silk veiling;** two frs., loosely woven. Pattern, an open square diaper formed of groups of six ends and six picks interweaving; about ten repeats to one inch. Buff. Well preserved but brittle. Original width of stuff about 13″. 2″ × 1″, 1″ × 1″. Pl. XXXVI.

**Ast. iii. 2. 03. Fr. of figured silk;** two pieces joined. Apple-green ground with alternate rows of four-petalled flowers and four buds placed crosswise, the bud groups occurring opposite intervals between flowers. Centre to centre of rows ⅞″; diam. of flowers ½″; diam. of bud group ⅜″; centre to centre of flowers ⅞″.

Pink bands through centres of flowers and buds give pleasing flush. Strong twill weaving, with rather irregular yarn. Small fr. of plain crimson silk lining sewn to back with crimson silk. General shape rectangular. Well preserved. 4½″ × 2¼″. Pl. LXXVIII.

**Ast. iii. 2. 04. Fr. of silk,** lustrous white with painted broad black bands, straight and chevron, and remains of pink drifting cloud, outlined black. Plain weave faintly ribbed. Ragged and perished along thin black outlines. 4″ × 3″.

**Ast. iii. 2. 05–9. Five painted wooden slips,** prob. from railing as Ast. iii. 4. 041–5. Front painted white, with row of drifting clouds in blue or green, with red outlines and black centres. Clouds simple in 05, 06; more elaborate in 07–9, but in same colours. 07–9 have also red streaks across each end. Back of all slips painted red, besides top edge of 05, 06, and under edge of 07–9. Rough painting. 05, 06, 7″ × ¾″; 07–9, 6¼″ × 1¼″. Pl. XCIV.

**Ast. iii. 2. 010. Wood and clay figure of man.** Originally evidently clothed, but clothes all lost. Head, neck, and hat only of pink clay (unburnt), moulded over upper end of roughly shaped wooden body. Arms are sheets of paper from Chin. MS. rolled tightly lengthwise. Legs merely two long straight pointed sticks, partially retaining bark, and bound to sides of body by wrapping of grass fibre. Legs abnormally long, prob. for sticking into ground. Coil of grass string tied to end of R. arm.

Face large featured, with protruding oblique eyes, oblique nose, small jaw and small receding chin. Flesh painted flesh-pink; bushy eyebrows black; eyes black with green pupils; mouth crimson; upturned moustache and small beard on chin black over light blue. Remainder of hair painted in continuous wash of light blue, descending before ears, covering lower side of jaws, and passing under chin.

Hat round, with projecting brim and dome-like crown; painted white. Edges of hat broken, otherwise good condition. H. 1′ 11″. Pl. CII.

**Ast. iii. 2. 011. Pair of clay stirrups;** probably from iii. 2. 058 or 057. Large open loops, with oblong projection at top, through which is slit for stirrup-leather. Soft pink clay, painted blue over all. Length 3¼″, gr. width 1¾″. Pl. XCV, XCVII.

**Ast. iii. 2. 012. Clay fig. of man rider,** prob. from horse iii. 2. 015 or 021. Head and body moulded on pointed stick core, which passed below into hole in back of horse, fixing rider upright in saddle. Legs moulded without core in convex curve, flat on inside, to grip sides of horse, but now broken from body. Arms (so far as preserved) straight by side, but broken off above elbow.

Dressed in tight-fitting vermilion coat reaching to knee and black top-boots edged with white. Skirts of coat sprinkled with spot rosettes in brown. Hair short, black. Cap close fitting, red at lower part in front, passing into narrow red band at back above lower edge of cap, which is of the high-lobed crown type, with red bow in front. Lobe is cleft in front. For similar caps, see *Ser.* iv. Pl. LXXVI, Ch. 0030, in which two streamers are added at back.

Face painted pink, with black for eyes, eyebrows, moustache, and small beard; crimson on lips. Features

rather perfunctory. Head broken from body, and general condition somewhat worn. H. 10¾". Pl. CII.

**Ast. iii. 2. 013. Clay fig. of man rider,** prob. from horse 015 or 021. As 012, and in same condition; arms lost from above elbow and legs broken from body. Coat pale yellow; boots or shoes black; leggings from ankle to knee white with dot and circle decoration in black. Black stirrup-leather passing down front of legs, and pale yellow stirrup. Vermilion bow and band round cap as in 012; but vermilion band down to lower edge of cap at back. Fair condition. H. 10½". Pl. XCIX.

**Ast. iii. 2. 014. Clay horse** painted blue; rider prob. warrior Ast. iii. 2. 023. Near hind leg and tips of ears missing; otherwise in good condition. T'ang type, broad chested with slim legs, full body, large rounded hind quarters, thick arched rather short neck, and small head. Latter turned slightly to R. Fetlocks painted white, and hooves pale blue; triangular white patch on forehead; hogged mane and forelock painted black; tail missing. Tiger-skin saddle-cloth in vermilion and black over white Numdah; black saddle with high pointed front and somewhat lower rounded back.

Saddle unpainted where covered by person of rider, and with hole in middle for insertion of stick core. On both sides of saddle-cloth and issuing from back of saddle five black lines representing flowing straps, as in Chavannes, *Mission archéol.* Pl. CCXC, No. 444. These flowing straps appear also on horse *Ser.* iv. Pl. LXXIII, Ch. xxxvii. 002, and in most representations of horses of T'ang period; see also goat ridden by a 'boy-Rishi' (Bushell, *Chinese Art*, ii. Fig. 126).

Headstall and single rein (which is attached to throat-lash) painted in black. No girth shown, but narrow black breast-band and crupper painted in black and decorated with groups of three white spots from which hang vermilion tassels. Four sticks, forming core of legs, project 1" below hooves for fixing horse in ground. In middle of under-side of body is hole prob. for additional supporting stick. For others of same type, see Ast. iii. 2. 016, 020–1. H. to crown of head 10¾". Pl. XCIX.

**Ast. iii. 2. 015. Clay horse,** painted terra-cotta. Rider prob. Ast. iii. 2. 024. Same type as preceding, and in good condition, but hind legs broken at hock. Hooves painted blue, fetlocks white; small tail moulded in clay and painted terra-cotta, but broken off short; same triangular white patch on forehead as in 014. Head straight. Saddle lemon-yellow; saddle-cloth black; other trappings as in 014, but all black with tassels. Flowing straps indicated only on offside. H. 10¾". Pl. XCIX.

**Ast. iii. 2. 016. Clay horse,** painted maroon. Rider prob. lady Ast. iii. 2. 022. Same type as 014 and 015. Blue hooves, white fetlocks, and realistic tail of white horse-hair. Large patch of white dappled with black on each side of neck and of hind quarters; white streak down face. Head straight. Saddle black on tiger-skin saddle-cloth; four flowing straps on near side, five on off; yellow tassels on breast-band and crupper. Three legs and nose broken off, but now re-attached. Good condition. H. 10". Pl. XCIX.

**Ast. iii. 2. 017. Steeple-crowned clay hat,** black, with flat brim, like witch's or Welsh woman's, fitting head of woman rider 022. Remains of buff and blue silk binding round edge of brim. This was prob. a veil which hung down; shape of hat recalls that on Scythic stone figure shown by Minns, *Scythians and Greeks*, p. 239. Good condition. H. 1¾", diam. of brim 2½" × 2". Pl. XCIX. A.

**Ast. iii. 2. 018. R. arm of clay fig.,** in tight-fitting green sleeves, bent at elbow and grasping bamboo slip (prob. lance-shaft) in closed fist. Flesh painted light pink. Arm has been close by side, as inner side of elbow has taken smudge of orange paint from adjacent surface; perhaps from same fig. as legs Ast. iii. 2. 019. Gr. M. (across bend) 2½".

**Ast. iii. 2. 019. Pair of legs from clay rider;** warrior, as Ast. iii. 2. 023, 024. Covered to knees by skirt of blue and white chequered coat of mail, finished with orange border; below, tiger-skin leggings and black shoes; white stirrup-leathers and stirrups. Crossing R. leg remains part of green sword-sheath (?), orn. with terra-cotta band dotted with black. Traces of some similar obj. broken away on L. leg. Perhaps from same fig. as Ast. iii. 2. 018. Paint fresh. Length 4⅝".

**Ast. iii. 2. 020. Clay horse,** painted white. Rider prob. Ast. iii. 2. 012 or 013. Same type as horses Ast. iii. 2. 014–16, and in good condition. L. foreleg extant but broken off. Head turned to L. Tiger-skin Numdah, and green saddle with five hanging straps indicated on near side and four on off side. Black headstall and trappings with orange tassels; orange and black mane; black hooves. Mark of clay tail, broken off. H. 10".

**Ast. iii. 2. 021. Clay horse,** painted white like preceding, and resembling it in all other respects except that head is looking straight forward. R. hind leg lost. Two shallow curved grooves on L. side of neck, showing that it was intended to bend head to L., but modeller has neglected to do so. H. 10¾". Pl. XCIX.

**Ast. iii. 2. 022. Clay woman rider,** prob. from horse iii. 2. 016. Sits astride, L. hand (broken off above wrist) at pommel of saddle, holding reins; R. hand wrapped in long sleeve, resting on thigh. Wears long trousers or divided skirt of brilliant green; black shoes; small dark-blue bodice with **V**-shaped opening in front and short upper sleeves; and long loose undersleeves, orange with spot-rosette pattern in darker shade, wrapped round arm and covering hand.

Head and face very neatly modelled and finished. Hair black, done in high topknot over which is painted mesh of hair-net in grey. Flesh white, with bright pink cheeks, small vermilion mouth, and vermilion patch on forehead and before each ear. Ears not marked; arched eyebrows in wash of pale blue over black. L. leg lost. Very slight

figure, held erect and head high. Steeple-crowned hat Ast. iii. 2. 017, probably belongs to this figure, the topknot having been pared down for this or some other head covering to fit. H. c. 10". Pl. XCIX. A.

**Ast. iii. 2. 023. Clay rider,** warrior, probably from horse iii. 2. 014. L. arm and leg lost, R. hand from wrist (but arm held outwards and bent up from elbow, prob. holding lance), and R. leg below knee. Traces of leopard-skin leggings just above break.

Wears tight-fitting sleeveless doublet of scale armour, painted in horizontal stripes of dark blue and white with vertical lines of black, with black belt, and chocolate band at bottom. Arms are covered with long close orange sleeves from undergarment; head with scale-armour helmet, rising into peak on top and falling like tippet on shoulders and back. Helmet painted like doublet, with scarlet peak, chocolate border, and yellow gorget under chin.

Face round, painted uniform flesh-colour, with wide-open prominent eyes almost straight and painted vermilion; thick black eyebrows; and small black moustache and beard. Mark of scabbard (?) on R. thigh. H. 7". Pl. XCIX.

**Ast. iii. 2. 024. Clay rider,** warrior, probably from horse iii. 2. 021. Like the preceding but in worse condition; both arms lost below middle of upper arm, and both legs broken off but L. extant. Dress as in the preceding with vermilion border to helmet, green gorget, green border to coat of mail, pale yellow sleeves, leopard-skin leggings, and black shoes. Face as in 023, but damaged. H. c. 9½". Pl. XCIX.

**Ast. iii. 2. 025. Wooden comb,** with slightly arched back. Teeth broken at one end, but fair condition. Length 3¼", depth 2".

**Ast. iii. 2. 026–9. Four black grapes;** shrivelled but fair condition. Gr. length ¾".

**Ast. iii. 2. 030–2. Three pastry 'twists';** coiled flat in loose spiral. Whitish in colour, like all other pastry from this tomb. Good condition. Average diam. 3" × 3½". Pl. XCII.

**Ast. iii. 2. 033–6. Four pastry 'bow-knot' twists',** as Ast. iii. 1. 030–41. Good condition, except 036 (fr. only). Gr. piece (033) 4¼" × 2¾".

**Ast. iii. 2. 037–8. Two frs. of pastry wafers,** as Ast. iii. 1. 013–20, Pl. XCII, &c. Gr. M. 4¼".

**Ast. iii. 2. 039. Pastry tartlet;** same pattern as Ast. iii. 1. 022. Surface somewhat decayed. Remains of decayed fruit (?) in middle. Diam. 2¾". Pl. XCII.

**Ast. iii. 2. 040–4. Five pastry tartlets,** of five-petalled flower shape as Ast. iii. 1. 021, but edges somewhat gone. Remains of decayed sweetmeat or jam (?) in centre of each, with grape in middle. Average diam. 2". Pl. XCII.

**Ast. iii. 2. 045–6. Couple of pastry tartlets,** with funnel-shaped centres and mushroom-like edges, as Ast. iii. 1. 024–5. Remains of decayed sweetmeat or fruit in middle. Fair condition. Gr. diam. 2½". Pl. XCII.

**Ast. iii. 2. 047. Bunch of grapes;** shrivelled but fair condition. Length c. 6". Pl. XCIII.

**Ast. iii. 2. 048. Monster-headed clay fig.,** standing, with hands muffled in wide sleeves on breast. Dressed in long green robe which covers feet, and half-length yellow jacket, V-shaped at neck with wide hanging sleeves and broad waist-band.

Head like goat's, painted grey, with black whiskers and goatee beard, and prominent eyes with black pupils and white eyeballs. Nostrils, lips, sockets of eyes, and throat painted pink. In excellent condition, except for ears broken off. Stick core protruding below. H. (fig.) 9", with core 13". Pl. CII.

**Ast. iii. 2. 049. Headless clay fig. of man,** prob. servant, stands with hands at breast, clasping slip of bamboo broken off about shoulder-level, perhaps pole of fan or canopy. Dressed in long straight white coat, belted round hips; leopard-skin gaiters, and black shoes. Division of legs indicated only by grooves down front. Stick core projects below, and at top where head is broken off. H. 8½", with core 11". Pl. CII.

**Ast. iii. 2. 050. Headless clay fig. of man,** like the preceding and with hands in same position. Coat and shoes black; leggings white with black splashes; some vermilion patches on coat behind. Stick core. H. 8½", with core 11½". Pl. CII.

**Ast. iii. 2. 051. Canvas bag;** pair of pockets, filled with chaff of some small grain (millet ?). Canvas a fine natural-coloured cotton (?), rather open weave, orn. with long wavy brush-lines in black, representing leaves (?). Pockets c. 9½" × 6".

**Ast. iii. 2. 055. Small basket (?) of fibre netting;** broken, but apparently elliptical, bound round edge with pliable strip of wood over which is lacquered bark. Netting is in double layer, lacquered black on outer sides; mesh about ⅛" sq., the interstices partially filled by lacquer. Basket or part of head-dress (?). Length c. 6½", width c. 5", depth apparently c. 2". Pl. XCIII.

**Ast. iii. 2. 056. Wooden chalice,** painted black with ornaments in white outline. Shallow bowl of stepped ogee curve, painted on band above step with drifting trefoil clouds divided by circles; below step a band of quatrefoil rosettes with opposed half-rosettes as borders. Stem slightly trumpet shape, painted with three three-peaked mountains at lower part and the same above; with flower bushes and trees between, and on mountains. Foot, cyma reversa, divided from stem by step; orn. similar to first pattern. Contents, brown powder. Height 4¾". Diam. 3¾". Pl. XCIII.

**Ast. iii. 2. 057. Clay horse,** of same construction as Ast. iii. 2. 014, Pl. XCIX, &c., and of similar type, but much larger and better modelled. Stands with head somewhat stretched forward. Head small and fine on long neck; large eyes; deep hollow within jaw on under-side; fold of eyebrow at corner of eye well shown. Painted maroon,

with white patches on sides of neck and quarters, and black spots over all. Muzzle pale pink; eyes black with dark grey eyeball; fetlocks white. Hogged mane painted in black on the clay; but forelock of grass fibre gummed on forehead.

Tail, forefeet, and both hind legs lost, and top of head with ears. Body and neck have core of straw; legs, cores of straight wooden sticks. No hole under body for external prop, as in smaller horses; but also no hole for core of rider, in saddle.

Saddle and Numdah of same pattern as in 014, &c., and brightly decorated. Saddle black with orange-coloured seat orn. with black rosettes; Numdah, orange and blue ground, orn. with semicircle of 'enclosed palmettes' in black, orange, mauve, blue, and emerald green, and black and white border. Strips of white silk, for stirrup-leathers (?), are attached to sides of saddle. For stirrups found detached, see Ast. iii. 2. 011.

No other trappings are shown; but round hind quarters and breast a row of pear-shapes, cut out of yellow silk and pasted on the body along line which crupper and breast-band would have followed. For this type of decoration on horse-trappings, cf. *Anc. Khotan*, ii. Pl. LIX, D. vii. 5, and tassels on similar horses. Three similar shapes are pasted on forehead, and each side of head; and one on tip of nose.

Good condition generally, except for cracks. For horse similar to this, see following, iii. 2. 058. H. *c.* 2′ 2″. Pl. XCVII.

**Ast. iii. 2. 058. Clay horse,** pair to the preceding, but with mouth open and nostrils distended, neighing. Teeth are shown, and tongue drawn back in utterance of sound. Face very thin. Top of head and L. foreleg lost. Painted maroon, with white patches (maroon-spotted) on quarters, and sides of neck, but no black spots. Muzzle pink; nostrils and jowl light red; teeth and roof of mouth white; fetlocks white, turning through pink striped with black to black hoofs. Mane not painted, but made of white hair gummed into groove along upper edge of neck. Tail of clay (broken off), painted maroon, and represented as tied up in projecting knob, with knot of white hair gummed on within the tip.

Saddle and Numdah as in 057, with yellow silk stirrup-leathers. Saddle orange, orn. with outline hexagonal diaper in red, and scattered lozenge-shaped rosettes of composite pattern in emerald green, pink, orange, and dull blue picked out with black and white.

Remains of five straps on each side of saddle, originally plum-colour silk. Four of these on each side are equally spaced, the fifth being rather broader and placed with wider interval, towards back of saddle. The grouping is correct, but is sometimes ignored in roughly made models or drawings.

Numdah has red ground, and is gaily decorated with elaborate palmette and flower pattern representing embroidery, in same colours as saddle. Colouring very fresh. No trace of silk hearts of iii. 2. 057. Strips of yellow silk attached for stirrup-leathers; for stirrups found detached, see Ast. iii. 2. 011.

Cracked about junction of head and neck, but condition generally good except for loss of leg; and head expressive. H. 2′. Pl. XCV.

**Ast. iii. 2. 059. Clay demon,** from entrance of tomb; of T'u-kuei type. Sits erect on haunches, with head up, mouth open, roaring, and forelegs planted firmly apart. Feather-shaped tail also stiffly erect. Body and head doubtless have straw core like horses preceding; forelegs have stick cores.

Body is of lion type; head like dragon's, with short broad muzzle, and huge round protruding eyes under heavy brows. Ears broken off. Eyebrows sweep back in thick up-curling green lock behind eyes; and under chin is beard of three swinging locks, of orange and green, furrowed with black. From outer corner of each eye is painted ruff (?), a white band striped with black, following curve of wrinkles behind back-drawn corners of mouth. Wrinkles marked by grooves, but not painted.

From shoulders spring two pairs of narrow curving wings or plumes of painted wood, inserted into the clay. One pair are painted dark blue, the other terra-cotta, and both are preserved on L. shoulder but broken away from R.; terra-cotta wing from latter is, however, preserved separate. Long locks of hair, moulded in the clay and painted blue, spring from hind leg.

Tail, in shape of stiff heavy 'brush', ridged down middle like a quill, is made of clay with strong wooden foundation, and stands up erect at back. Under-surface painted pink with red spots; upper in variegated **V**-shaped bands of blue, orange, green, and pink, picked out with white and black.

Body and legs generally have brilliant orange ground, covered with large round green spots having brown outline and black centres; brown spots are interspersed between the green. From chin, right down middle of body, runs a broad pink band spotted with red and outlined by narrow stripes of white and pale yellow striped with black. Fetlocks also are yellow, black-striped, and cloven hooves of hind feet slate blue. Hooves of forefeet are lost. Eyes have red balls, and irises of rings of white, black, yellow, and black, with green pupil.

No mane. Backs of forelegs 'feathered' with variegated hair as in tail. Nostrils and outline of mouth black; gums and tongue red; teeth white, carefully made with long canine teeth.

Spirited and effective, but coarse work. Colouring very fresh. H. 2′ 1″. Pl. XCVI.

**Ast. iii. 3. 01. Fr. of paper,** in two pieces pasted together, bearing traces of Chinese writing. Has been pasted to back of some woven fabric, of which it has taken impression. Colour buff and texture coarse. 4½″ × 2½″.

**Ast. iii. 3. 02. Fr. of silk muslin;** yellow with painted spot pattern of four-petalled flower in lighter shade. The 'resist' seems to have preserved the threads from slight

shrinkage in dyeing. So the pattern is of slightly denser texture than the ground without any additional threads being introduced. Well preserved. 13″ × 3″. Pl. XXXVI.

**Ast. iii. 3. 03. Frs. of silk**; crimson; with slightly corded texture. Very discoloured in places. Well preserved. Gr. fr. 16″ × 10″.

**Ast. iii. 3. 04. Frs. of silk**; white and of fine texture; discoloured in places. Well preserved. Gr. fr. *c.* 11″ × 12″.

**Ast. iii. 3. 05. Wooden comb,** with long diverging teeth and narrow curved back. Well made. 4½″ × 2⅜″ × 7/16″. Pl. XCIV.

**Ast. iii. 4. 01. Silk tubular object.** Striped herring-bone twill, alternate yellow and dull pink. Thread bound loosely round one end. Finely woven and in perfect condition. 2″ × ⅝″.

**Ast. iii. 4. 02. Three silk artificial leaves,** green, with stalk of gummed silk to which leaf is bound by fine floss silk. Av. 1⅜″ × 1⅜″.

**Ast. iii. 4. 03. a. Two silk sleeve-like objects,** white, with turn-over cuff, tied loosely at opposite end with raw silk; cf. Ast. iii. 4. 01. 5⅛″ × 1½″.

**Ast. iii. 4. 03. b. Fr. of silk painting** on fine buff canvas painted with a bough of white blossoms with pink calyx. Two blossoms are in the act of falling from the bough. Stems brown shaded with grey. Outline black. Style Chinese. 3″ × 3⅜″.

**Ast. iii. 4. 04. Fr. of paper,** cut into continuous string of 'cash', still attached to the waste part from which another string of 'cash' has been cut. 15⅜″ × 3″. Pl. XCIII.

**Ast. iii. 4. 05. Frs. of silk painting.** Small frs. from larger painting, in white with coarse brown outlines.

**Ast. iii. 4. 06. Fr. of silk damask,** pale yellow. Spot pattern, a lozenge composed of nine dots. Twill on tabby ground. Well preserved. 20½″ × 2⅜″.

**Ast. iii. 4. 07. Fr. of silk**; plain white. 14″ × 2¼″.

**Ast. iii. 4. 08. Fr. of painted paper.** Ground red with rosette formed of six spots of alternate blue and green with white centre round similar green spot; to this the spots are attached each by pedicle of white, with three radiating white lines between spots. 4⅜″ × 1¼″.

**Ast. iii. 4. 09. Fr. of white silk 'sleeve',** in miniature; four-petalled rosettes of alternate red and blue and red and green, petals outlined black, painted on at intervals of 1⅜″. Torn away at both ends. 3¼″ × 1½″.

**Ast. iii. 4. 010. a–j. Painting on silk.**

*General Note.* Mass of frs. of figure subjects (genre) painted on silk bolting. No subject complete. Frs. are parts of a scroll (*chüan* or Makimono) edged with buff silk damask of a pattern similar to *Ser.* iv. Pl. CXVII, T. XIV. v. 0011 a, and subjects are divided from each other by strips of the same pasted on. [For an account of the relation of this painting to other remains of T'ang pictorial art, the original arrangement of the panels, &c., see 'Remains of a T'ang Painting discovered by Sir Aurel Stein, described by Laurence Binyon', *Burlington Magazine* June 1925.]

The style of painting recalls irresistibly Japanese work in so far as the precision of craftsmanship is concerned. All the work is clean-cut and decisive. There is no background, but trees near the figures are introduced perhaps to indicate open air. Birds flying and blossoms falling serve the same purpose; but there is no perspective, no atmosphere, and these accessories are dry and hard.

The figures are, however, very human in an unemotional placid way. The faces are pale pink, perhaps white, delicately tinted on cheek and eyelids with an artificial blush. The eyes are long and narrow, and in the attendants more oblique than in the 'quality'.

The coiffures are elaborate but very neat and precise. One person is holding in her hand an object which resembles a jewelled toupee. The ladies appear to affect a turban-like arrangement with a knot in front (resembling the toupee referred to) and a long double-barred gold pin on the R. side. Attendants have the hair parted in the middle and folded in sleek bundles over the ears, which are covered. One person has what looks like a long wolf's tail all over the head and hanging on the L. shoulder. Two evidently superior persons have a blue cloth projecting in a loose round fold above the forehead from the back of the 'turban'.

The dress of attendants is a single loose overall reaching to ankles, with long sleeves; simple, round neck opening and narrow belt. The ladies wear a long trailing robe held up from the high waist-band by braces passing generally over a loose mantle. This drapes the shoulders with a **V**-opening in front, from which issues a white fichu or kerchief, falling in trumpet folds to a point about waist level. All drapery is simply drawn and is very graceful. A darker tint is used to express folds, which are also indicated by black contour lines. A small spot pattern is frequently introduced all over the draperies. Foliage on trees is in two tints of green, dark and light, and every leaf is outlined with black. The dark green is the outer plane, and the light the under.

A Tilaka of various forms is painted in red on all faces, and always a crescent in red beside each eye; cf. clay model Ast. iii. 2. 022, Pl. XCIX.

All the colours, which are opaque, are perfectly fresh, and the harmony is charming. Some of the pigments appear to have had a corrosive effect on the silk, as frequently the outlines of missing pieces are accurately left. Black outlines are often softened by a grey line below or beside.

**Ast. iii. 4. 010. a. Silk painting.** Shows part of three compartments each about 21 inches in height and about 8½ inches in width, divided from each other by strips of silk damask. L. shows a small yellow table on which are traces of gilded objects, and beside it a portion of drapery, yellow, striped red. Centre compartment shows R. side of dancing figure in orange long-sleeved robe, R. arm upraised;

crimson boots, now perished. R. compartment, head and shoulders of female figure in dark crimson robe spotted white, white kerchief, and blue braces. In hair, which is dressed turban fashion, a large gold double-barred ornament at R. side. Head ¾ to L. p. delicate pink, deeper on cheeks, small red lips, red crescent mark with stem at outer angle of R. eye. A few thin hairs over ear. L. hand, raised to shoulder level, holds black object (toupee) with circular rosette (jewel) of gold red and pearls. A kind of palm-tree stem rises at back.

To R. p. stands an attendant (page ?) in soft pink robe, spotted pink, to ankles, and black girdle from which depend six ribbons studded with pearls. Sleeve long and pendent, hands missing. Hair black, parted in centre and tied in large close bunches over ears. Face long but full. Red stripe at R. eye and spot on forehead. Shoes (small part only remaining) orange vermilion. All outlines black.

To L. p. two small patches of orange vermilion drapery spotted white. 23" × 15¾". Pl. CV.

**Ast. iii. 4. 010. b.** Fr. showing two female heads ¾ to L. p. That to L., smaller than the other, has straight narrow eyes; red mantle **V**-shaped at neck; large blue head-dress, with dark spot pattern, projecting above forehead and carried down each side of face covering ears.

That to R., round face, straight, long, narrow eyes, turban coiffure with double-barred gold pin. Mantle yellow green with red spots. Stole dark green with red spots; braces and girdle blue. Caduceus-shaped mark on forehead. Breasts indicated at **V**. Thin brown tree trunk at back. Split and pieces missing. 7½" × 4½". Pl. CVI.

**Ast. iii. 4. 010. c.** Upper half of female figure ¾ to L. p., to slightly larger scale than others. Face and neck full. Petal-shaped mark on forehead. Blue head-dress (missing) over centre of turban coiffure. Dark green stole, spotted dark over shoulders, and white fichu falling from **V**-opening. Yellow-green coat spotted red with orange red lining. Robe dark plum with spot pattern widely spaced, of white flower and green leaves. Indications of tree at back (corroded). A separate small piece of robe with part of stole and coat not joined up. 7" × 2¾". Small piece 1¾" × 2". Pl. CVI.

**Ast. iii. 4. 010. d.** Fr. of orange-red robe spotted with white lozenge pattern, white band and braces. Point of white hangs from waist. To R. portion of pink drapery spotted dark pink. 5¾" × 1¼". Pl. CVI.

**Ast. iii. 4. 010. e.** Two pieces which do not join. In front, ¾ to R. p., back view of woman's head, with coiffure as worn by attendants. Usual shaded pink cheek and red marks. Dark-green stole just visible at neck. Behind, another woman ¾ to R. p. with fox or wolf tail head-dress over a kind of blue wimple, and gold orns. above. No hair visible. Portion of L. side of face missing. Long-sleeved pink robe spotted darker pink.

Fig. behind appears to hold large stringed musical instrument resembling a *genkan* with gilded edges, five frets, and long yellow head. No strings shown. Head of first woman obscures most of body of instrument, the sides of which are foiled in prob. nine slight curves, that at top running up to neck. Both hands of musician are covered by her long sleeves.

To R. the gold-edged green cape or stole of a third person is just visible and is lined vermilion; the robe, of which only traces remain, dull crimson. 5" × 2½". Pl. CVI.

**Ast. iii. 4. 010. f.** Fr. of head of woman, ¾ to R. p., bending forward; slanting eyes, pointed nose; turban coiffure (part missing); trident-like mark on forehead; thick eyebrows; crimson stole. An indistinguishable object (perhaps her R. hand and cuff), pale yellow and white, touching R. cheek. 1¾" × 1¾". Pl. CVI.

**Ast. iii. 4. 010. g.** Fr. of woman. L. p. corner of cheek with part of hair. Green stole and green coat with white spots; crimson skirt with pink waist-band and braces.

L. hand supports by its edge a transparent brown elliptical object (fan ?), the other end (handle ?) being prob. held in the R. hand. Much broken. Traces of outline of tree to L. p. 2¾" × 1½". Pl. CVI.

**Ast. iii. 4. 010. h.** Fr. in two strips (now joined) showing L. shoulder and upper arm, and part of face of woman in orange-red robe spotted white. Hair dressed over ears. Petal-shaped mark on forehead. Pose, bending slightly down to L. p.; perhaps looking back over L. shoulder. White buds with pink chalices are falling from branches of tree above. Near R. edge of piece, a broken strip of dividing damask. 10½" × 3½". Pl. CVI.

**Ast. iii. 4. 010. i.** Fr. of tree with leaf resembling that of *Ficus Indica*. Each leaf outlined black, and the mass in two tints, dark and light. 2½" × 2". Pl. CVI.

**Ast. iii. 4. 010. j.** Mass of frs., both painted and plain, including remains of birds, of branches of tree bearing white buds with pink chalices, of foliage from tree, &c. Pl. CVI.

**Ast. iii. 4. 011. Painted silk.** Miscellaneous small frs. painted in white body and brown body colour with coarse black outlines. Some frs. closely related in silk and painting to K.K. I. i. b. 01, Pl. LXI. Gr. fr. *c.* 4½" × 3½".

**Ast. iii. 4. 014. Clay model of pot or basin** on stand (?). Exact significance undetermined. Shows deep round vessel on top of flat square lump of clay, with triangular piece of 'wall' with stepped edges rising up at back. Whole roughly modelled in very soft pink clay full of fine hair, and painted over all light blue. Gr. H. 3¾", gr. width (base of wall) 5¾", gr. projection (from wall) 2¾". Pl. XCIX.

**Ast. iii. 4. 015. Clay Bactrian camel**; standing, with neck thrown back and head in air. L. foreleg lost; otherwise complete and in fair condition. Animal is of clay plentifully mixed with straw, and body is built up on solid core roughly formed to shape, of bundles of straw bound together with string. Curving neck has core of one bundle of straw, bent to shape, and coated with thin layer only of clay, which is largely cracking off. Cores of legs are solid wooden sticks, ¾" in diam., projecting 3" to 4" below hoof.

Body and neck well modelled; head somewhat small, thrown back with mouth open, and wearing expression of pain. A tuft of short hair grows on forehead; larger lock falls back from it between ears. This hair, both humps, fringe of long hair hanging below neck, and bunch of hair round foreleg below junction with body, are painted light red; latter and tuft on top of head pitted to indicate that hair is short and bushy.

Body generally is painted pinky white; eyes black, wide opened, with grey balls; inside of upright ears, dark grey; hooves white, with black toes and fringe of black hair round foot. Wrinkles round eyes and corners of open mouth represented by black lines; tongue and upper teeth not represented, only gums (red). Lower teeth white. Tail lost, but was evidently inserted by stick core. H. *c.* 2′ 3″. Pl. XCVIII.

**Ast. iii. 4. 018. Wooden object,** of reversed shape; prismatic section with projecting node on one side where curve reverses, painted and ornamented with drifting palmettes in black. One end of object fashioned into kind of trefoil. Paint appears to be discoloured silver. 2 7/8″ × 7/16″ × 3/16″.

**Ast. iii. 4. 019. Wooden core of tassel,** in three tiers round each of which remains cord holding frs. of yellow and crimson silk. At top is a silvered cone and ball terminal from which issues a cord for suspension, threaded through entire length of core, and an elliptical piece of paper glued to its upper end which served to attach it to some other object. 1 5/8″ × 3/4″. Pl. LXXXIX.

**Ast. iii. 4. 020. Turned wood tazza,** similar to Ast. 05. Perfect, with careless saw-marks at bottom. Height 3 3/4″, diam. 4 5/8″. Pl. XCIII.

**Ast. iii. 4. 021, 028–33, 062. Frs. of wooden pedestal,** open-sided, painted black with drifting palmette design in white outline. Ends of openings semi-elliptical, connected by cusped strips above and probably below. Corners, simple mitre joint, glued. Remains of iron dowels on lower edges indicate previous attachment to base. Remains of glue on upper edges. For similar but taller pedestal, see painting Ast. iii. 4. 010. a, also wooden miniature Ast. iii. 4. 052, Pl. XCIV. For a similar stand, see *Shōsōin Catalogue*, iii. Pl. 147; also backgammon board of this pattern, *ibid.*, Pl. 72. Length of side 18″, height 5 3/4″. Pl. C.

**Ast. iii. 4. 022, 023, 034, 063. Four frs. of wooden pedestal** similar to preceding, but smaller and without white pattern. Iron dowels for attachment to base and top. Length *c.* 13″, height 4 5/8″. Length of side when completed 21″.

**Ast. iii. 4. 024–6. Three miniature wooden bases,** rectang., with all four sides chamfered towards flat top, and two grooves cut at right angles to each other across length and breadth of bottom, leaving 'feet' at corners; cf. (on large scale) K.K. I. i. 05. Sides painted emerald green; bottom of feet crimson; flat tops unpainted, but without holes as in K.K. I. i. 05. Probably bases for posts of railing such as Ast. iii. 4. 027. *c.* 1″ sq., h. 11/16″.

**Ast. iii. 4. 027. Fr. of miniature wooden railing.** Two small posts, sq. in section, with tapering neck terminating in wider sq. head; lower part of posts joined by slab of wood between, length 1 3/4″; on top, handrail, circular in section, morticed to fit on to heads of posts.

Whole painted crimson, with bright yellow patches on top of rail, and band of emerald green bordered with white along lower outer surface of the 'boarding' between posts. On the green is drifting cloud in terra-cotta and pink, outlined black. Back of one post shows unpainted line where another strip of 'boarding' was attached at right angles to existing portion of fence; top of handrail above is cross-morticed for crossing of another rail. For portion of same or similar balustrade, see (posts) Ast. iii. 4. 056–9; ('slabs') 042–4, Pl. XCIV; (hand-rail) 060; see also full size, N. III. xii. 01. Length 2 5/8″, h. 2″.

**Ast. iii. 4. 035, 039, 040 (now joined). Painted wooden miniature bridge** or gangway, resembling those shown in 'Th. Buddhas' paintings as leading to celestial pavilions; but slightly curved as in Chinese bridges. Roadway slate blue; sides protected by balustrades consisting of three posts on each side. These are connected by wooden slabs painted on outer red-bordered sides with drifting palmette in green, blue, and black, outlined red on white ground; posts as Ast. i. 7. 09, 010. One post at each end and one in centre. Under surface of roadway red. Length 8 3/4″, breadth 4 3/4″, height of balustrade 2″. Pl. XCIV.

**Ast. iii. 4. 036. Four strips of wood,** squared, connected at varying distances from each other (av. 3/4″) by band of paper painted orange with crude rosettes in blue, green, and white. One end strip, 7″ × 13/16″ × 5/16″, has marks of attachment at ends on flat face. Other three strips, 6″ × 5/16″ × 5/16″, have been attached by their ends butted against other pieces and perhaps belong to object similar to Ast. iii. 4. 035. Large piece red and blue, other pieces alternately green and red and blue and red.

**Ast. iii. 4. 037. Strip of wood,** painted red and blue with paper band attached. Similar to small strips of Ast. iii. 4. 036. 5 1/4″ × 7/16″ × 5/16″.

**Ast. iii. 4. 038. Painted wooden miniature balustrade,** from bridge similar to that of Ast. iii. 4. 035, &c., the two end posts missing. Top of middle post missing. Length 8″, height 1 3/16″.

**Ast. iii. 4. 041–5. Painted wooden balustrade slabs,** straight, with red upper bands, lower green with white dividing line. On green, five drifting palmettes in pink, orange, and red outlined black. *041, 046*, 7″ × 1 1/16″ × 1/4″. (Attached to ends of 041 are posts 057 and 059.) Remaining three *c.* 1 1/4″ length. Pl. XCIV.

**Ast. iii. 4. 046, 051. Half of miniature wooden arch,** composed of two members; the lower square in section supports centrally a thinner upright member which follows same semi-elliptical curve. Outer face of lower member

bordered red at upper edge with Romanesque saw-tooth in black on white ground below. Other faces red, with marks on inner face of ends of seven cross-pieces like joints (cf. Ast. iii. 4. 036, 037).

'Check' cut at upper end as for keystone. Upper member has red border at top; below this on each side three green drifting palmettes inclining towards keystone. Ends of both members cut straight in one plane for impost. 6″ × ⅝″ × 1 3/16″. Pl. XCIV.

**Ast. iii. 4. 047, 048, 055, 060. Pieces of wood** of miscellaneous shapes from miniature architectural model. 047, 048, 'joists', painted red, 6″ × ⅜″ × 5/16″ : 055, slab, painted in bands of red and blue, 13/16″ sq. × 3/16″ ; 060, hand-rail same as Ast. iii. 4. 027. 2⅝″ × ⅛″ diam.

**Ast. iii. 4. 049, 050. Two wooden rods,** round, painted red, showing marks of attachment at ends. Prob. parts of miniature architectural model. Largest 10⅛″ × ⅛″.

**Ast. iii. 4. 052–4. Frs. of miniature wooden pedestal,** similar to Ast. iii. 4. 028–33, Pl. C, but painted yellow, with a kind of marbling in crimson lines; cf. Ast. iii. 4. 010. a, Pl. CV. Edges of cusped opening green; base board black. 052 burnt at one end. Length of longest piece, which has part of second opening at burnt end, 4⅝″; height 1 5/16″. Pl. XCIV.

**Ast. iii. 4. 056–9. Three small wooden posts,** square in section and same pattern as those connected with Ast. iii. 4. 035, &c.; show marks of attachment of upright pieces, prob. Ast. iii. 4. 041 which has been tentatively joined to 057 and 059. 1⅞″ × ⅜″ × ⅜″. Pl. XCIV.

**Ast. iii. 4. 061. Small turned wooden object,** like miniature Stūpa, with umbrella-shaped Tee. Painted yellow. Diam. ½″, height ⅞″. Pl. CIV.

**Ast. iii. 4. 064. Clay stucco female figure,** on wooden core which projects 2″ below feet. Costume, a close sack robe dark red-brown striped black; low, round-necked vermilion half-sleeved bodice shows in front only, with pink sleeves continuing from yellow half-sleeves. Green stole round shoulders crossed in front, the long ends hanging nearly to ankles in front and covering hands clasped beneath. Face pale, pink with flush on cheeks and dropped eyelids. Lips red with black dimples at corners. Black eyebrows and outlines to eyes. Vermilion Triśūla forehead mark and stroke at each temple; cf. faces in painting Ast. iii. 4. 010. f. Black hair in high horn coiffure, bending forward from crown of head. Head inclined slightly forward and downward. Well modelled. For costume, cf. *Ser.* iv, Pl. CIV, Ch. 00260. 10″ × 2″. Pl. XCIX. A, CII.

**Ast. iii. 4. 065, 066, 067, 071. Frs. of pastry cakes.** 067 and 071 now joined form part of ring, 1¾″ diam. × 5/16″.

**Ast. iii. 4. 068, 069. Circular pastry cakes,** in form of dish of fruits. Diam. 1⅝″ × ⅜″.

**Ast. iii. 4. 070. Circular pastry cakes,** in form of rosette. Diam. 1⅜″ × ⅜″.

**Ast. iii. 4. 072. Quantity of flour,** tied up in paper bag.

**Ast. iii. 4. 072. a–b. Pair of wood and stucco figures.** (*a*) male, (*b*) perhaps female or youth. Bodies of wood, only roughly shaped, with sticks for legs glued on and (in *a*) bound round also with bast. No arms, though body of *b* is shaped at top to suggest shoulders. Heads of fine clay, carefully moulded and painted, and in excellent condition.

(*a*) is that of man, painted pinkish flesh-colour, with long slightly oblique eyes, short snub nose, straight mouth deeply indented at corners, and long straight chin. Expression half cynical, half smiling. Mouth painted vermilion. Eyes, eyelids, eyebrows, wrinkles on forehead and crows-feet, drooping moustache, tuft of beard, and beginning of hair at ears, very carefully and skilfully drawn in fine lines of black. Hair at ears disappears under close-fitting black cap, which covers whole of head and rises up at back in flattened lobe, while on neck it finishes in two short black tails; cf. many examples in Ch'ien-fo-tung paintings, e. g. *Ser.* iv. Pl. LXXVI, Ch. 0030.

Head of (*b*), perhaps woman or youth, is painted glossy white, with pink on cheeks and eyelids and in two rings round neck. Black eyes and eyebrows, short straight nose, and small red mouth. No wrinkles or moustache.

Head-dress same as in (*a*), but for absence of tails on neck. Both figs. must have been clothed, but only remains consist of torn buff silk trouser-leg on L. leg of (*a*). For remains perhaps of other clothes, see Ast. iii. 4. 01–3, 09. Arms were prob. added in paper as in Ast. iii. 2. 010. H. 12″. Pl. CII.

**Ast. iii. 4. 073. Wood and stucco figure of man,** with roughly shaped body of wood and long sticks for legs bound to body by a kind of bast. Coarse string passed through hole at shoulders to support missing arms. Body, legs, and arms intended to be clothed.

Head carefully modelled on to upper end of body in very fibrous clay coated with smooth plaster; painted sallow flesh colour with narrow downward curving eyes outlined black; faint moustache; pink lips; black cap rising at back in flattened lobe with two tabs pendent behind.

Overhanging brows; broad, flat slightly retroussé nose with large nostrils. Mouth hitched up to R. p. with deep downward furrows from corners, giving humorous expression. Ears roughly indicated. Muscles of neck slightly modelled. For hat, see Ast. iii. 4. 072. a–b (*b* without tabs) and *Ser.* iv., Pl. CIV, Ch. 00260; LXXVI, Ch. 0030. 21″ × 2″. Pl. CII.

## OBJECTS EXCAVATED IN TOMBS OF GROUP v

**Ast. v. 1. 01. Fr. of figured silk face-cover,** with dark-blue plain frill and plain buff lining. Centre subject of medallion nearly all missing, leaving on one side four claw-like feet in blue and part of neck outlined white on orange ground. Probably one of a pair of adorsed, rampant beasts, within a 'Sasanian' medallion.

Borders blue with buff pearls, five in each quadrant, interrupted at upper central point by part of circle of small

pearls in a green square, round a hexagonal yellow centre. Opposite point missing, but portions of the two intermediate points present, which do not interrupt pearls, but are outside the circles. In the spandrels are very angular patterns, one having berries on a scrolled stem. All are fragmentary. Colours fresh. Twill weave, coarse, stepped, but regular. Largest piece 8½" × 3".

**Ast. v. 1. 02. Frs. of painted silk shroud.** Indigo blue ground; subject as in Ast. ix. 2. 054; details slightly modified. Set-square in hand of Fu-hsi shows divisions as on a measuring rule, and compasses held by Nü-wa are more like callipers with curved limbs. Skirt at junction of bodies has scalloped edge. Between lower ends of serpentine extremities a yellow sun surrounded by linked stars just as between heads. Considerable portions are missing; whole broken and torn into numerous frs., now mounted. Length *c.* 7′ 9″, width *c.* 3′.

**Ast. v. 1. 03. Pair of large paper shoes** painted black with buff sole. Sole upturned at toe. Opening at back of heel. Sole and golosh joined by string oversewing. Old MS. paper used, with Chinese chars. very clear. [Note by Dr. L. Giles: Inside the shoe for the right foot is a Chinese inscription headed *Wu pei mên* (Military North Gate), and dated 7th day of the 9th moon of the . . . year.

On the sole of the left shoe are references to the works of the Taoist writer Pao P'o Tzŭ of the 3rd–4th cent. A. D.]

Size abnormal. Good condition. 13¼″ × 4″. Pl. XCIII.

**Ast. v. 1. 04. a. Two frs. of paper band,** sewn across one another at right angles. Bands made of several thicknesses of paper, the top one painted black, and orn. with string of lozenges alternately of red and buff paper, pasted along middle. Also detached fr. of similar band, showing Chin. chars. on rev. Cross 9¼″ × 11½″, width of bands 1¼″.

**Ast. v. 1. 04. b. Two frs. of paper band,** painted black on *obv.*, with large stars composed of four pink paper lozenges set with points meeting at a common centre. *Rev.* buff with Chinese chars. Made of several thicknesses of waste MS., torn at both ends. Gr. fr. 8″ × 2½″.

**Ast. v. 1. 05. Fr. of plain silk,** dark blue, with remains of white sewing silk. 11¼″ × 6″.

**Ast. v. 1. 06. Small pottery saucer,** with round foot, containing in bowl remains of straw. Grey body painted black outside, roughly made. Diam. 4″, h. 1¼″.

**Ast. v. 1. 07. Inscribed burnt clay slab** from entrance to tomb. Surface painted grey black, and divided by fine buff lines into twenty columns filled with Chin. inscr. in red; see App. *A*. Red border round whole. Broken in three, but in good condition and legible except near break. 20″ × 22¼″. Pl. LXXIV.

**Ast. v. 2. 01. Fr. of figured silk,** 'Sasanian' type, from head-cover. Portions of two medallions one above the other. Field and border rich green, interrupted by blue band of weft passing across junctions.

In upper medallion, two confronted eagles or cockatrices in red, with upraised wings and tails, the latter with six green spots outlined white and yellow. Heads thrown well back, and foliate crest balanced on beak and curved backwards. Angular treatment.

As base are two reversed foliate scrolls. Border of closely set fleurs-de-lis, outside which small pearls in white and yellow. A thin line surrounds subject just within fleur-de-lis border. Above cockatrices two small confronting animals (lions ?) with trophy on foliate base between them. Extreme upper part missing.

Lower medallion: confronting seated winged lions with foliate upraised tails (cf. *Ser.* iv. Pl. V, Yo. 00145), white and yellow, outlined red. Base, reversed foliate scrolls. Above, object not distinguishable, but a flaming jewel to R.

Upper spandrel: on red ground confronting running deer regardant, blue with red spots and white antlers and outlines. Above and below a four-petalled yellow and white rosette with red centre and green outlines. Lower spandrel: two confronting marching animals, perhaps sheep, without spots. Colouring as in upper spandrel but green heads, and rosettes as above.

Horizontally the repeating medallions almost touch. Vertically a small square, yellow with red centre and blue outline, bridges the interval between.

Drawing, design, and weaving very good. Colours very rich and splendidly preserved. Side half of lower portion missing and rough edges at this part discoloured and perished.

As usual with this type of fabric, the colours are in successive bands, excepting the red, which runs all through. Consequently where outlines are not red they may suddenly change from white to yellow as they occur within the limits of one or the other colour band; or, as in the case of some of the fleurs-de-lis, blue suddenly replaces green. The blue deer has one hoof green because it falls within the green band and beyond the limit of the blue.

The weave is closer than usual and plain, with faint rib, suggesting transition between older warp-rib and twill. Probably Chinese work. 7½″ × 3¼″. Pl. LXXVIII, LXXXI.

**Ast. v. 2. 03. Fr. of silk** from plain white frilled border from head-cover Ast. v. 2. 01.

**Ast. v. 2. 04. Fr. of plain white silk,** from woman's shroud. One fr. tied in knot. Gr. fr. *c.* 18″ × 6″.

## OBJECTS EXCAVATED IN TOMBS OF GROUP vi

**Ast. vi. 01. Silk embroidery on damask** (from tomb vi). Seven triangular frs. of rich crimson bound at edges with pale blue knot-dyed silk which in some cases is extended beyond point to form streamer. Lining of plain silk muslin. Damask is small double-lined opposing chevron, with small lozenge between opposing points, and two lozenges at wide space.

On this are embroidered, *semé*, in chain-stitch thin scrolls

proceeding from discs formed of spirally worked button-hole stitches in pale buff. The roots of scrolls are thickened and generally other colours introduced. Colours of embroidery, pale blue, two shades of buff and dark brown. Pattern first painted on fabric in yellow. Well preserved. Largest piece without streamers 8½" × 5". Pl. XLV.

**Ast. vi. 02. Fr. of figured silk** (from tomb vi. 1). Fr. with pattern in yellow and buff on crimson ground. Pattern repeats horizontally, and with slight variations vertically. A row of pairs of confronting stork-like forms. Each of these has a single-line angular spiral neck without head and carries on his pouting breast an upright stem.

This bifurcates at the height of ¾", forming half an arch to R. and L. With opposing similar curves alternate wide and narrow arches are found, the narrow ones being in front of the birds and showing a square within. The tails of the two adorsed birds rise straight and combine into a bowl-shaped flower edged at top with filaments. This furnishes the larger arch.

Above this the stems rise abruptly vertically and combining throw off, R. and L., flowers and leaves. Stems forming small arch also rise, and scrolling over carry each an elliptical berry. The single angular leg of each stork bears at right angles to its downward direction a bowl-shaped bud with five short projecting filaments. Height of repeat 5"; width 1⅞". Cf. L.C. 02, Pl. XXXV, for certain characteristics. Warp-rib weave. Torn at edges and part perished. Dimensions of piece 12" × 10½". Pl. LXXVIII.

**Ast. vi. 03. Frs. of silk gauze,** rainbow coloured (from tomb vi. 1). Vertically the weaving is in alternate open and close bands; warp colours are yellow, red, yellow, blue, and occasionally ochre. The red being slightly thicker yarn than the other colours, the open red band is closer than the other open band. The close (and narrower) bands are yellow and ochre. The weft is in bands of dark brown, pale yellow, red, ochre, blue, pale yellow, red, pale yellow. Fine weaving. Perished. Largest piece *c.* 3½" square. Pl. LXXVII.

**Ast. vi. 04. Fr. of plain silk**; lining (from tomb vi. 1).

**Ast. vi. 1. 01. Frs. of silk**; rich crimson spotted yellow by knot-dying. Remains of green silk lining and silk wool padding. Very brittle. Gr. fr. 10" × 4½".

**Ast. vi. 1. 02. Fr. of silk,** faded blue, with knot-dyed buff spots. Very brittle and ragged. *c.* 18" long. Pl. LXXXVI.

**Ast. vi. 1. 03. Frs. of figured silk** of angular tree-coral type, in buffs, bright crimson, purple brown and green, these colours forming bands across the material. Details of pattern not clear, but very stylized rampant beast is repeated across fabric. Very strong selvedge. Discoloured and ragged. *C.* 17" × 4". Pl. LXXX.

**Ast. vi. 1. 04. Fr. of silk gauze embroidered.** Triangular, crimson, bound with plain blue and with streamer of buff silk at apex. Lining of thin yellow muslin. Crescent-shaped spots in yellow and blue, placed in rows and worked in button-hole stitch, through both gauze and muslin. 5" × 3½". Pl. XLV.

**Ast. vi. 1. 05. Mass of silk frs.,** plain blue and red. Faded and brittle.

**Ast. vi. 1. 06. Fr. of embroidered silk.** Crimson with floral design in chain-stitch, blue, green, and yellow, of same type as Ast. vi. 01, Pl. XLV. Lined yellow muslin, bound on one edge with plain blue silk. 3¼" × 3".

**Ast. vi. 1. 07. Mass of silk frs. from shroud,** chiefly white, discoloured to buff; buff, blue, and crimson; mixed with silk wool, canvas, and fr. of string sole of a sandal or shoe. All very brittle and perished. Mass *c.* 8" × 8" × 1".

**Ast. vi. 1. 08. Pair of miniature shoes,** made of woollen fabric. Pattern on fabric, if any, perished. One shoe very damaged. Sole 3¼" × 1⅝". Pl. XCIII.

**Ast. vi. 1. 09. Fr. of embroidered crimson silk,** worked in chain-stitch. Floral pattern. 2¼" × 1⅞".

**Ast. vi. 1. 010. Wooden fig. of woman**; roughly carved with slightly curved, flat arms, 'leg of mutton' shape, attached by wooden pins at shoulders and movable. Neck and back of head round, face flat with slightly projecting nose. Hair in high knob above, painted black and sloping backwards. Eyebrows and eyes black and not oblique, mouth a dab of red.

Bust rectangular, skirt long in form of octagonal pyramid truncated at top. Painted white on all exposed surfaces, over which other colours. Sides of pyramid alternately red and green, the front being red and continued up in divided line to form edge to **V**-neck. Bust green; red band round hips. No feet. Arms in transverse green and red stripes.

Painting very rough and fragmentary. Cf. Ast. ii. 2. 06, Pl. CIII. For more carefully made examples, see Ast. vi. 4. 03, 04. 9¼" × 2¼" × 3". Pl. CIV.

**Ast. vi. 1. 011. Wooden fig. of man**; roughly made, with oviform head, narrow end up, roughly painted. Black hair with slightly raised flat-like portion at back (possibly part of cap); thin beard following line of jaw angle and rising in point at chin; a tuft on each side of chin in hollows at sides of point; long thin moustache.

Features painted in black outline with dab of red for lips. Over high-throated vest, a short jacket crossed in front to R. pr. and coloured khaki, with green border. Green cuff to movable arms set on with wooden pins. Trousers long, very full, black. Tip of feet showing. Hands clenched, with hole drilled through to take flag or spear shaft. Black belt and hole near R. hip. Crude work. 12" × 4¼" × 2½". Pl. CIV.

**Ast. vi. 1. 012–13. Two objects of wood and matting**; meaning uncertain. Each consists of thin oblong board, over one side of which is laid a piece of grass matting woven herring-bone fashion. Over this again are laid flat strips of grass, one along each edge and two down middle; they are nailed to matting and board at regular intervals by

small wooden pegs painted black on head. Pegs remain on both, but grass strips have mostly perished from 012. Traces of glue on edges. Prob. parts of a box. Good condition. *012*, 8¼" × 4"; thickness ⅛". Pl. XCIV.

**Ast. vi. 1. 014. Wooden fig. of man,** roughly cut and face particularly crude. Armless, but body shaped with marked waist and shoulders; the latter cut flat at ends and painted over, showing that no arms were probably contemplated. Wears black three-quarter-length jacket, with green borders, crossing on breast to R. pr. Vermilion belt with large green buckle and sword-loop with end of strap hanging down behind, finished with green tag. Below, white trousers to ankle and short black boots with red line round tops.

Features indicated by very rough hollowing out to make sides of nose and scratch for mouth; subsequently painted over white of flesh; nose, a streak of vermilion with black spot at top; eyes, concentric circles of green and vermilion with black pupils; mouth, vermilion line; eyebrows and moustaches, concave brush-lines of orange and vermilion, and beard orange and vermilion spot. Hair black, almost entirely covered by close-fitting cap the curtain of which comes down to level of chin. This type of cap occurs frequently in the Wu Liang Tzŭ sculptures, generally on charioteers. The figure suggests a groom; see Chavannes' *Mission archéol.* Pl. LII. H. 7". Pl. CIV.

**Ast. vi. 1. 015. Large pottery dish;** flat, circular, with flat bottom, and sides slightly incurving to plain rim. Two roughly incised circles on bottom inside. Light grey body, rather roughly made; good condition. Diam. 9⅜", h. 1⅛". Pl. XC.

**Ast. vi. 1. 016. Fr. of lid of lacquered wood;** small, circular, rising to point, with flange at bottom to fit on box; lathe-made. Remains of red and black lacquer over outside, much decayed. Wood soft. Gr. M. 2⅜", h. ⅞".

**Ast. vi. 1. 017. Wooden hind leg of animal** (trotting horse ?). Flat on inner side, and with pin through upper end for attachment to body. Outer side roughly shaped. Hole drilled at 'ankle'. Painted black, except where it touched body. Length 3¼".

**Ast. vi. 1. 018. Lug-eared wooden bowl,** as T. 01, Pl. XLVII; Ast. ii. 2. 021, &c.; but rather long and narrow. Unlacquered but showing traces of paint. Good condition. Length 5½", gr. width of bowl 2⅝", depth 1⅜". Pl. XCI.

**Ast. vi. 1. 019. Wooden spatula;** roughly shaped, flat bowl, handle broken. Length 4½", gr. width 1". Pl. CIV.

**Ast. vi. 1. 020. Two frs. of bronze,** with curved edge; very badly corroded. Remains of silk amongst corrosion. Perhaps from mirror. Gr. M. 2".

**Ast. vi. 1. 021. Pair of model shoes of silk and paper.** Paper soles; upper of striped silk muslin, crimson, green and blue on buff ground, over paper. Edge of opening left raw. Paper from old Chin. MS., writing practically effaced. Length 5". Pl. XCIII.

**Ast. vi. 1. 022. Fr. of wooden comb,** with arched back. H. 2$\frac{7}{16}$", length 1¾".

**Ast. vi. 1. 023–5. Miniature bow and arrows in paper case.** *023.* Bow in bow-sheath. Bow, a piece of cherry (?) twig with bark on, split longitudinally, and flattened in middle for grip. To notched ends is tied taut bowstring of 'catgut'. Beneath a long narrow paper bag, roughly shaped to suit, and blackened outside.

*024.* Quiver with two miniature wooden arrows. Latter very neatly made, one with triangular head, the other with spatula-like head. Other end split for insertion of paper 'feather' like metal 'feather' of *Ser.* iv. Pl. LI, M. Tagh. b. 007–10, bound round neatly above with thread, and notched.

Quiver a thumb-shaped paper bag, blackened like bow-sheath, and sewn with blackened string. *025.* Another quiver of same sort, without arrows. Length of bow 10¼", of arrows 4$\frac{7}{16}$", of quivers *c.* 3¼" × 1⅜". Pl. CIV.

**Ast. vi. 1. 026. Wooden peg,** roughly shaped, with two strips of decayed hide curled round it. Length of peg 3⅛". Pl. XCIII.

**Ast. vi. 2. 02 and 03. Two wooden pegs,** oblong, roughly pointed at both ends, and inscribed with Chinese charms both sides. Both have identical inscrs. *02.* 4$\frac{3}{16}$" × 1" × ¼". *03.* 3⅝" × 1" × $\frac{3}{16}$". Pl. CIV.

**Ast. vi. 2. 04. Fr. of blue silk,** spotted white by 'resist' process (carelessly), similar to Ast. vi. 3. 03, Pl. LXXVIII; with two rectangular panels of figured silk, in warp-rib weave (one attached to blue silk), each composed of two frs. sewn together. Pattern, very stylized grotesque beasts in red cream and buff on yellow ground; drawing very angular. In one a dragon regardant is repeated without any interval, its cream and buff tail streaming forward above its red body.

In the other a winged lion with three cream straight claws in each forefoot presents the soles of these feet directly forward. The two hind feet are on ground, which is represented by stepped wavy line of three bands, red, buff, red alternating with yellow, cream, yellow.

The red and yellow are in bands across fabric; head, forelegs, and section of ground, red and cream. Wings (curved forward), neck, part of body, and section of ground, yellow and cream. Hind legs, rear of body, tail, and section of ground red and cream. These panels perhaps represent shoulder-straps. Panels 4¼" × 2¼". Blue silk 6" × 10". Pl. XXXVI.

**Ast. vi. 2. 05. Wooden fig. of man;** very rough clumsy work. Armless, with shoulders cut flat and painted over as in Ast. vi. 1. 014, &c. Lower part chopped away in middle to height of 1⅜", to form rude stumps of legs which are painted black. Above, wears vermilion coat with black borders and belt. Groove cut into fig. along front of waist, and right round fig. at bottom of coat. Features painted coarsely black on white, much effaced. H. 8½". Pl. CIV.

**Ast. vi. 2. 06. Human head, man's.** Shrivelled but in fair condition. Teeth remain, and black hair done in knot at corner of head; also remains of scanty moustache and

beard. Remains of buff silk covering adhering to face, and dark-blue silk wrapping round head.

**Ast. vi. 2. 08. Pair of model shoes,** of silk and paper. Soles paper, from Chinese MS., writing almost effaced. Uppers of purple silk lined with buff canvas; remains of purple silk binding round opening and edge of sole. Fair condition. Length 6¼". Pl. XCIII.

**Ast. vi. 2. 09. Imitation dagger-sheath,** made of silk and paper; of long finger-shape, paper entirely covered outside with blue silk, bound round mouth and down seam with purple. Length 5¼", width of mouth 1¾". Pl. XCIV.

**Ast. vi. 3. 01. Pair of shoes,** made of paper and covered outside with crimson silk. Sole of strong canvas. [Paper used bears Chinese memoranda relating to purchases of wine and wheat.—Dr. L. Giles.]

Inside a few frs. of fine silk canvas. Well preserved. Length of sole c. 9"; breadth at toes c. 3¼". Pl. XCIII.

**Ast. vi. 3. 02. Frs. of silk,** plain white and lustrous, from garment padded with silk wool and lined with silk muslin. Very brittle. Largest 3' 6" × 3'.

**Ast. vi. 3. 03. Two frs. of crimson silk,** lozenge pattern with circle in each lozenge; all in dots of pale yellow by 'resist' process. Larger 4¼" × ¾". Pl. LXXVIII.

**Ast. vi. 3. 04. Frs. of mitre-shaped hat,** made of stiff paper covered with plain black silk, the paper being first painted black. The portions are: a semi-elliptical piece 7" × 6"; rectangular piece (incomplete) 9" × 3¼"; oblong, pointed at one end, cut askew at opposite end on one side, other edges broken away, 9" × 4"; pointed end of similar oblong 5" × 3¼". Smaller frs. and pieces of brown silk. Brittle.

**Ast. vi. 3. 05. Painting on paper,** in black outline and roughly coloured here and there with red, brown, and green.

Probably a single scene is represented. In the upper part an important stout personage with scanty beard and long moustache sits or kneels on a platform placed on ground. His hair is down to the nape of his neck in a close pad, his head covered by a mitre, without streamers. Pose ¾ to R. p. In left hand a round fan with straight handle. R. hand extended to take funnel-shaped cup from kneeling attendant.

On ground to his R. is a painter's palette (?) divided into squares containing colours. Two brushes (?) rest on the palette. Behind him a cloak or rug hangs on a rail with his bow-and-arrow cases, and on the ground a sugar-loaf shaped object. An attendant at back; his head appears, with hair flattened down and bunched into a small knot at each ear, a short thin wisp escaping downwards from each and curving upwards. Attendant in front wears hair arranged the same way, but only straggling wisps from one knot. He (or she) wears a vest with straight neck; coat to thighs with **V**-opening to waist, which is girdled; loose trousers and black shoes. The cup is offered in left hand with affected pose of fingers. In right hand is a ladle hanging by the hooked handle to his little finger. Behind him are two figures, man and woman, kneeling, in voluminous coats and mitred heads. Hair of both is tightly dressed as that of principal figure. Evidently a visit. Above is looped drapery in red and green, probably of a 'Shamiana'.

In the lower register are to R. two musicians kneeling, one playing long whistle or flageolet, while the other beats a small kettle-drum placed on short stool. Both wear mitres, with curtain hanging at back. Hair as of principal figure; costume as of attendant above. A skirted figure with arms extended and long sleeves hanging beyond hands evidently dances, but the agitation is confined to the pendent sleeves. Bodice close fitting and over hips, with waist-band and braces. A touch of red on each cheek suggests a female. Hair as of others with addition of large butterfly knot on top, a long upcurving wisp on each side from below, and a single angular thin wisp from one side above.

In foreground at R. corner, a figure in loose garments with one sleeve rolled up leans down, gathering grass or making a fire. In centre foreground a three-tier table supports a curious black object somewhat helmet-shaped with three prongs at top, a tiny handle at one side and something hanging from the other; on the whole resembling inverted cauldron. Below table, a vase; farther along is a snare with coil of string attached.

To L. of dancer a table with three legs at each end, the three having a continuous three-arched foot (as in the Ku K'ai-chih roll), and cauldron with ladle, as in Ast. ii. 1. 01, 07, Pl. CIV, CVII. Below a squat bottle-shaped vase in a stand which has a hoop-handle arching right across.

A bullock-cart arrives from L., with a large awning over it supported by three hoops; no driver. An orchard lies between upper and lower registers, confined within a rectangle to L. of the picture. One or two other objects, among them a butter churn, probably of culinary use, lie to extreme L. of foreground. Paper is in two sheets joined across centre.

*Note.* In the above picture we have a rendering of a scene frequently depicted in the Han sculptures as reproduced in Chavannes' *Mission archéol.*, e.g. on third stone of Tsiao Tch'eng ts'ouen group, Pl. LXXVIII. In this and others of the same type are found dancers, musicians, cooks, and the butter churn. The whole scene suggests an elaborate picnic, perhaps connected with burial rites. 16¾" × 18¾". Pl. CVII.

**Ast. vi. 3. 06. Thin twig,** with silk wool twisted round it. 2' 2¼". Pl. XCI.

**Ast. vi. 3. 07. Fr. of silk garment,** made of blue silk spotted white similarly to Ast. vi. 3. 03, to which are attached two rectangular panels of embroidery on pale buff. Their border is composed of lines made like a brush stroke varying from thick to thin throughout its length, and coloured red and brown alternately in its length, with alternating lines of buff and white. Within a very stylized

medley of leaves, flowers, whirling four-pointed stars, roundels, &c.

The centre mass has a faint resemblance to a poodle's face, with long dropping ears (leaves). This may be intentional, as it is outlined as a mass with a dark-brown line. Shaded work is the rule, and the stitch a fine chain.

Size over all 13" × 8½". Embroidered panels 4¼" × 2¼". A second fr. of the blue silk with white spots. 7½" × 8¼". Pl. LXXVIII.

**Ast. vi. 3. 08. Fr. of silk waste.** Padding from grave-clothes.

**Ast. vi. 3. 09. Fr. of fine open silk muslin,** resembling modern fan 'gauze' or bolting. Pale buff. Piece as folded 7" × 7". Very brittle.

**Ast. vi. 3. 010. Wooden food tray,** roughly made shallow oblong, with rounded corners and broad fish-tail handles; cf. Ast. 01. No lacquer. Rev. two Chin. chars. A **X** scratched near one edge. 21¼" × 13¼" × 1½". Pl. XCI.

**Ast. vi. 3. 011. Circular, turned wooden box,** of similar shape to Ast. vi. 4. 024, lacquered on outside black, on which a band of spiral wave scroll in dark pink with orange high lights. A node projects from front and back of each spiral, giving it a Chinese character. Above, a narrower band of circles bordered by dark pink lines outlined orange. Split and thin; collar partly broken away. Diam. 5¼", height 2¼". Pl. XCIV.

**Ast. vi. 3. 012. Pair of silk and canvas shoes,** small size. Both uppers and soles made of double layer of strong buff canvas, and uppers covered with plain purple silk. Soles and uppers have separated owing to decay of thread. Length 8", gr. width 2¼".

**Ast. vi. 3. 013, 014. Pair of paper shoes,** painted black outside. 10½" × 3¾". Pl. XCIII.

**Ast. vi. 3. 015. Piece of wood,** spatulate at one end, tapering and round towards other where it is curved. Broken at narrow end; painted black. 6¾" × ¾" × ½".

**Ast. vi. 3. 016. Forelegs of wooden horse,** with remains of dark paint with buff over. Hoofs black, and black lines up centre of front crossed with short lines. Glue at top section. 5½" × 1¾". Pl. CIV.

**Ast. vi. 3. 017. Wooden boat-shaped food bowl,** with horizontal lugs for handles; no paint or lacquer remaining. Knife-cuts on bottom. Remains of food inside. Well made. For lacquered example, see Ast. ii. 2. 021. Length 7¾", width 5¾", height 3". Pl. XCI.

**Ast. vi. 3. 018. Rough bun-shaped object,** of coarse dough (?); very friable. Diam. 3½", thickness about 1⅜".

**Ast. vi. 3. 019. Pair of silk cuffs,** separately cut from ends of sleeves. Made of double layer of strong buff canvas, lined with buff silk, padded outside to half their length with silk waste and covered with plain purple silk; latter much decayed. Length 6", width 4¼" to 5".

**Ast. vi. 3. 020. Pottery jar;** grey body; tall straight shape, widest at flat base and drawing in to narrow plain mouth. Outside marked with faint annular grooves. Filled inside with fine powdered grain (?). H. 8", diam. of base 5½", mouth 3¾". Pl. XC.

**Ast. vi. 3. 021. Millet from jar** Ast. vi. 3. 020.

**Ast. vi. 4. 01. Silk tapestry woven shoe,** woven to shape. Pattern of sides and back is in three horizontal bands divided into oblong panels, each panel containing a standing goose with wings extended. Top and bottom bands pale blue and buff. Middle red and buff. Colours of ground and bird in each panel counterchange alternately, in their respective band colours.

Vertically the order is, a yellow bird in all three alternating with a red bird between two blue birds. In each panel in R. and L. lower corners, a dot and a ring respectively (sun and moon ?). Narrow bands of dull and light buff with counterchange spot pattern divide the panels horizontally.

At the toe (mostly missing) red, buff, and blue bands, with small Chinese characters in counterchange, are mitred into sides, but woven in one piece with other part. Upper edge red, neatly turned over and sewn.

Lining, strong canvas in one piece woven to shape. Sole, thick coiled cord. Very good work. As usual with these shoes, the warp is of vegetable fibre and has perished. Colours bright. Sole 9½" × 3½". Height 1¼". Pl. XCIII.

**Ast. vi. 4. 02. Lacquered wooden plate,** brown, with plain rim thickened at extreme edge and set at angle of *c.* 160° with bottom. Wood, thin, coated with canvas, with strip of cane round edge for strength. Over canvas, lacquer. Inside a mass of faint knife-cuts. Diam. 7½". Depth, external, ¾".

**Ast. vi. 4. 03–4. Pair of wooden figs. of women-servants (?),** standing with hands folded in sleeves on stomach; lower part of frs. cut in solid octagonal block widening towards foot. Dressed alike in long skirts striped vertically red and emerald green, and half-length black jackets with red borders, crossed over breast and showing high-necked striped vest, yellow, red, and green, in **V** and at neck. Cuffs on arm in broad bands of white, red, and green. Jacket of 03 and skirt of 04 orn. with sprinkled white rings; and other garment of each orn. with rosettes formed of similar ring surrounded by white dots.

Hair black, with straight lock in front of ear, and top-knot on crown of head (triple in 04) sloping backwards. Bead and tassel orn. in yellow, white, and red in front of topknot.

Straight features, painted not carved, with white skin, red lips, red spots on cheeks and forehead, and red line round base of hair. Eyebrows, a double arch of black and green. Rather rough work; good condition; cf. Ast. vi. 1. 010. H. (*03*) 8¾", (*04*) 10⅝". Pl. CIV.

**Ast. vi. 4. 05. Wooden fig. of man,** very rudely cut. No neck, no arms, but shoulders cut like very blunt arms of cross and painted over at ends. Body a mere block, widening towards ground; the lower part having middle third cut away to height of 3" to make rough legs. No feet.

Lower part painted white and orn. with large yellow spots encircled with red and smaller red dots; upper, black with white spots, and open **V** at neck. Flesh white, with features coarsely painted in black; black hair done in flat mass on top with rudimentary topknot. H. 9¼". Pl. CIV.

**Ast. vi. 4. 06. Wooden fig. of man,** very roughly hewn. No arms, but exaggerated shoulders as in the preceding. Short legs also formed as in the preceding, with feet rudely cut at ends of stumps and painted black. Black band also round middle of body. Remainder of fig. painted white with large yellow spots surrounded by red line, as in 05. Head cut flat on top and painted black; features painted in black on white, with black moustache and beard. H. 9¼".

**Ast. vi. 4. 07–8. Two wooden figs. of men-servants;** pair to 03 and 04; standing stiff and straight, division between legs carefully cut away and legs rounded with rude feet at ends. Slight shoulders on body, cut flat at ends, to which arms were originally gummed (?). Both arms of 07 remain (detached); and L. arm of 08.

Dressed alike in half-length emerald-green jackets, red-bordered, and with black belts having sword-loop at side; white stiff trousers finished with emerald-green band at mid-shin; black boots; and round white skull-cap with black seam. Hair below cap, black; features painted black on flesh colour, with red lips, but surface of 08 mostly destroyed.

Hole pierced obliquely through R. hand of 07, and horizontally through L. hand of each, for shafts of weapons (?). H. (*07*) 10¼"; (*08*) 8¾". Pl. CIV.

**Ast. vi. 4. 09. Wooden animal;** weak representation with long flattened sausage-shaped body and fish-like head. No ears. Mouth painted as black line within wide orange ellipse on under-side of snout; eye as black spiral with orange and black centre within wider circles of black and emerald green. Narrow groove cut in ridge of snout up to top of head, probably to receive a crest of hair or feathers, and a similar one at ear. Legs long thin flat slips of wood gummed to sides of body; but only hind legs remain (one detached). Long flat curving tail fixed into groove at back.

Body and legs orig. painted white, with feathery leaf-like decoration in emerald green and orange flowers outlined black, over whole except under-side. Length 10¼", h. 6¾". Pl. CIV.

**Ast. vi. 4. 010–11. Two parts of one wooden wheel,** with two spokes remaining. Felloes painted on one side, red outlined orange with green borders. Spokes round at felloes and inserted in round holes, flattened at nave; red. Diam. 7¾", width of felloes ⅜", thickness ⅜". Pl. XCIV.

**Ast. vi. 4. 012. Fr. of wood,** in leather sheath. Wood merely a rough stick, cut sloping at both ends and broken along one edge. Sheath a finger-shaped piece of leather, sewn up one side and stained black outside. Sewing mostly perished. Length of wood 6¼", sheath 4¼" × 1¼". Pl. XCIII.

**Ast. vi. 4. 013. Imitation canvas boot.** Small shoe of buff woollen (?) canvas, roughly stitched to canvas sole, and with long tubular piece added at top. Outside painted black. Length of foot 3½", h. 4". Pl. XCIII.

**Ast. vi. 4. 014. Two frs. of cane skein matting,** closely woven in diagonal bands. One piece 12¾" sq., other 12" × 11".

**Ast. vi. 4. 019, 020. Two strips of wood,** cut at one end into thick chisel edge, with many small dowel-holes in which are a few broken dowel-pins. Prob. part of model carriage. Length 6¾"; thickness (*019*) ¼", (*020*) $\frac{3}{16}$". Pl. XCIV.

**Ast. vi. 4. 021. Wooden flag-shaped object.** Cut in one piece, with straight 'staff', sq. in section, and small sq. 'banner' at one end. Front side of 'staff' and lower (raised) edge of 'banner' painted red. Probably part of some model. Length 4½", 'banner' 1$\frac{7}{16}$" × 1¼". Pl. XCIV.

**Ast. vi. 4. 022. Wooden hub of wheel,** long cone-shaped hollow and blunt at both ends. In broadest part nine holes for spokes, three with broken ends of spokes. Roughly made and split; no paint. Length 3", diam. of outer end 1⅜", inner end ⅞". Pl. XCIV.

**Ast. vi. 4. 023. Wooden foot of piece of furniture,** consisting of flat strip carved in profile at each end in form of rudimentary recumbent lion claw. These 'claws' linked by two festoons giving three blunt points about equally spaced in the length of the piece.

In upper aspect three holes drilled down, right through, one at each point probably to receive rails. All edges roughly chamfered. Similar to foot of table leg seen in Ast. vi. 3. 05 and also in the Ku K'ai-chih scroll. 8¼" × ⅞" × ⅞". Pl. XCI.

**Ast. vi. 4. 024. Wooden box;** flat, circular, lathe-turned with check and raised inner collar for lid. Outside lacquered bright red on which a band of adjoining rosettes. Each rosette composed of four pinnate green petals round small yellow ring as centre, outlined yellow; small yellow ring between upper and lower pairs of petals, and in interspaces between rosettes. Green line on top and bottom of red band. Lid missing. Diam. 5¼", height 1¾". Pl. XCIV.

**Ast. vi. 4. 025. Circular wooden box,** similar to Ast. vi. 4. 024. Pattern outside on red ground; four green bull-nosed fishes in profile, each holding in mouth a wreath of green pearls outlined yellow and forming a sort of nimbus encircling head. Cf. fish in fresco, *Anc. Khotan*, ii. Pl. II. A group of yellow pearls of different sizes project on yellow stems from side opposite noses of fishes. Much abraded. Diam. 4", height 1¾". Pl. XCIV.

**Ast. vi. 4. 026. Two bronze plates,** broad, flat, hook-shaped, held together at their curved ends by iron pin. Length 1¾" × width 1". Length of pin ⅜". Pl. CIV.

**Ast. vi. 4. 027–8. Part of wooden clothes-horse,** consisting of leg with foot, and straining piece or rail. Leg rectang. ⅝" × ⅜" in section, uniform in size for length of

16", but thinned away above that for further length of 10¼", and corners chamfered to make octagonal section. Immediately below point where thinning of staff begins, a wooden tenon belonging to 028 is driven through staff from front to back. Upper end cut down sq. to projecting tenon (broken off).

Lower end finishes with similar tenon, fitted into centre of double lion-leg foot, roughly cut, generally resembling Ast. vi. 4. 023, but simpler in form; only the one hole for tenon of leg.

028 is straight rail, oblong in section (⅞"×⅝"), with tenon at either end, one broken off short, the piece being fixed in 027. Both pieces cut carefully smooth but unpainted. For similar clothes-horse, see Ast. ii. 1. 03, Pl. CVII. Length (027) 26½", width of foot 5⅝"; length (028) 22½". Pl. XCI.

OBJECTS EXCAVATED IN TOMBS OF GROUP vii

**Ast. vii. 1. 01. Figured silk face-cover,** of coarsely woven 'Sasanian' type surrounded by frill of plain silk. Pattern of centre, roughly designed 'nest' or base, on which stands a series of triangular forms, point down, one above the other; or it looked at when turned half-way round, a stylized eagle-like bird holding bunch of grapes in beak, with the triangular forms sticking into back of neck. Remainder of pattern illegible.

Ground red, pattern brown outlined buff. Surrounding border, brown with buff pearls. Between adjoining medallions appears to be a circle of smaller pearls on brown ground round yellow centre. Poor work. Much perished. 8"×8". Pl. LXXVII.

**Ast. vii. 1. 02. Fr. of silk;** striped twill, alternate brown and green. Discoloured and brittle. Largest piece *c.* 9"×6".

**Ast. vii. 1. 03. Fr. of painted buff silk,** with traces of floral (?) pattern in grey lines and pink washes. Attached a small piece of rose-coloured fabric in broken satin twill strips. Torn and fragile. *C.* 4"×4".

**Ast. vii. 1. 04. Fr. of paper,** in several layers painted black. Gr. fr. 5"×3".

**Ast. vii. 1. 05. Two silk frs.,** one plain buff, the other painted with white and bold red, buff, and black lines. Well preserved. Painted piece 4"×3½".

**Ast. vii. 1. 06. Figured silk face-cover,** with plain silk frill and lining. Two spots in centre corroded away and stained green at back. Above stains, human hair resembling eyebrows adhering to lining. Corrosion probably due to spectacles.

Pattern: on fine blue ground a lozenge lattice in bands of pale green, bordered by buff lines and studded with heart-shaped leaves in pink (?), four at each side of lozenge. Lozenges flattened at sides where they meet giving width of thrice the band; here a six-petalled rosette, coloured as hearts. In field of lozenge, eight-pointed star, buff, within which four-petalled (heart-shape) flower with green centre spotted buff.

For similar designs from the Near East, cf. v. Falke, *Seidenweberei*, Figs. 34, 228. Well woven. Shape of complete cover is oblong with round corners. Very discoloured. 9¾"×6¾" without frill, 3" depth of frill. Pl. LXXX.

**Ast. vii. 1. 07. Large shoe of lacquered canvas;** regular Chinese style, with broad upturned toe. Uppers made of six layers of buff woollen canvas, cut to shape, and perhaps gummed together at sides to stiffen them. Over this a thick layer of fibrous matter having the appearance of linseed poultice. Upon this an outer layer of thin canvas which is turned inside at top; paper lining and inside sole added from MS. showing column of Chin. chars.

Whole of outside coated with black lacquer, of which patches remain. Sole, extending only to point of upturn of toe, is in two layers; upper a thin piece of wood, lower leather, the two attached to each other and to uppers by short iron studs driven in round edge. Very strong and well made, but when new must have been rigid and inflexible, and therefore not intended for ordinary wear. Length 10¼", gr. width of sole 3⅝", H. of upturned toe *c.* 5". Pl. XCIII.

**Ast. vii. 1. 08. Pair of silver 'spectacles',** as Ast. i. 3. 022, &c. Crumpled and broken in two. 6¾×2¾.

**Ast. vii. 2. 01. Fr. of clay dragon** (two pieces), very finely modelled. Represented squatting (?), shoulders humped, head thrust forward threateningly to L.

R. hind leg (stump only) stretched forwards as in Ast. iii. 2. 059; L. probably at slightly different angle, but leg itself entirely lost; forelegs perhaps downwards, but stumps only remain.

Curve of muscular shoulders and wrinkling of skin over ribs well expressed. Small lion-like head, with prominent eyes, square snout, and wide jowl showing grinning teeth in front. Pointed ears, one broken off. Back of neck covered with long pointed locks of back-lying mane, and fringe of long tufts shown at back of upper part of forelegs. Tail (missing) seems to have curled up against back as in Ast. iii. 2. 059, Pl. XCVI.

Painted white, with nose, eyes, and mouth in black outline; mane in green, salmon pink, and blue; underside of body salmon pink. Length (joined) 6¾", width across shoulders 3¼". Pl. CIII.

**Ast. vii. 2. 02. Fr. of clay relief fig.;** R. shoulder, breast, and arm, bent across front from elbow. Wears plain white vest down middle of front; remainder clad in pale green robe sprinkled with clusters of pink flowers outlined white, and green leaves. Clay much mixed with straw; core to arm made of bundle of split cane or wheat straw. H. 6¼", gr. width 5". Pl. CI.

**Ast. vii. 2. 03. Clay head of demon.** Grotesque human type, with pointed ears, oblique protruding eyes, very short upturned nose, and mouth pursed up under it in contumacious exaggerated pout. Hair rises in long peak on

top of head. Cheeks, forehead, bulge between eyes, and corners of mouth, all creased with heavy wrinkles.

Face generally painted dark brown; with green and black moustaches and tuft on chin (painted only) and heavy green eyebrows (moulded and painted); inner side of lips red; eyeballs white; socket and pupil of eyes black; ears pink inside, and outer rim light blue spotted with black, continued down to neck; furrowed hair of peak and back of head dark red.

Tip of peak broken off, and straw core protruding; otherwise good condition. For similar head, see Ast. x. 1. 09. H. 9". Pl. CI.

**Ast. vii. 2. 04. Clay head of snake,** outstretched. Flattened snout, round eyes, and small back-lying ears. Painted red over white with black lattice-work to represent scales; and white underneath. Straw core. Broken off at neck end. Length 3½", gr. width 1". Pl. CIII.

**Ast. vii. 2. 05. Clay horse,** as Ast. iii. 2. 014, Pl. XCIX, &c. Body better modelled, but in bad condition and all legs lost. Head and face extant, but most of face broken away. Painted light blue, with black saddle and Numdah, white bordered, and black harness. Group of hanging straps on each side of saddle. Brown tassels hang from breast-band and crupper. Clay tail, broken off. Rider perhaps Ast. vii. 2. 011, Pl. CII, but does not seem quite to fit saddle. Length 9½", h. extant *c.* 6". Pl. C.

**Ast. vii. 2. 06. Clay horse,** as Ast. iii. 2. 014, Pl. XCIX, &c., painted maroon. Very strong build, and well modelled except for stiff thick-set legs. Fetlocks white, hooves black, saddle and trappings, as in vii. 2. 05, black and white. Lower half of face, and clay tail lost; L. hind leg broken off but preserved. H. 11". Pl. C.

**Ast. vii. 2. 07. Clay horse,** as Ast. iii. 2. 014, Pl. XCIX, etc. Rider evidently was vii. 2. 09, Pl. XCIX. Painted terra-cotta, with leopard-skin saddle on white Numdah, and black harness and tassels. Small horsehair tail, tied in knot. Most of face lost, and all legs except R. foreleg, which is, however, broken off. Stick core of L. hind leg also remains. H. (without leg) 4¾", length 11½".

**Ast. vii. 2. 08. Packed bundle of clay,** from back of pack-horse. Long bolster-shape, curved to fit over saddle. Painted white, and neatly tied with blue ropes. Length across ends (inside) 4", width *c.* 1½". Pl. CI.

**Ast. vii. 2. 09. Clay man rider,** as Ast. iii. 2. 012, Pl. CII, &c.; belonged to horse vii. 2. 07. L. arm lost below middle of upper arm, and R. leg below knee. Remainder of limbs preserved but broken from body. R. arm slightly out and bent up from elbow, hand clasping fr. of twig painted black. Slightly corpulent, but very erect.

Light blue coat with white border and black boots; white stirrups and stirrup-leathers. Features 'Mongolian' with high cheek-bones. Hair black, with straight lock hanging before ear; black cap with high cleft-lobed crown curving over to front. Face painted white; eyebrows, eyes, moustaches, and small beard black; mouth red. H. *c.* 9¾". Pl. XCIX.

**Ast. vii. 2. 010. Two clay arms,** about same size as from rider figs., broken off in middle of upper arm, and joined to each other by long black fibre string tied round wrists. Both are R. arms; one in blue sleeve (but not belonging to rider vii. 2. 09), the other in yellow, and bent at elbows. Hands perfunctory, apparently clenched, with unpainted surface on under-side, where they apparently touched some other object. Length 2½" and 2¾", of string 2' 3".

**Ast. vii. 2. 011. Clay rider,** as Ast. iii. 2. 012, Pl. CII, &c.; perhaps from horse Ast. vii. 2. 05, Pl. C. R. foot lost, and L. leg. Was evidently playing on pipe (now lost), as mouth is rounded and open, with downward hollow on lower lip where pipe rested. Hands are held out in front of breast one below other, with fingers on top as though playing on stops; thumbs stuck out below for supporting pipe.

White coat with black belt, and black boots. Face round and smooth, painted flesh colour; surface mostly gone on L. side. Head covered prob. with close-fitting skull-cap, or else smooth black hair. No moustache or beard. H. 9¾". Pl. CII.

**Ast. vii. 2. 012. Legs of clay rider,** as Ast. iii. 2. 012, Pl. CII, &c. Clad in pea-green coat with divided tails wrapped about legs, white breeches showing underneath, and black boots. Yellow stirrups and stirrup-leathers. H. 4¾", width between feet 5". Pl. C.

**Ast. vii. 2. 013. Wooden model of weapon,** in sheath (?). Wooden baton, plano-convex in section, widening towards one end, and with handle-like other end cut down in slight collar 3½" from extremity. Whole of handle-end painted pea green (except on back); other end also green to length of 1".

Remainder painted black, with hunting scene in buff detailed with black on front (convex) side. This represents rider galloping to L. and turning round to discharge arrow at leopard which bounds in pursuit. Much paint rubbed off. Wooden peg driven through from front to back immediately below green 'handle' end; head flush with surface and painted black. Length 15½", width $1\frac{5}{16}$" to $2\frac{3}{16}$", gr. thickness $1\frac{1}{16}$". Pl. CII.

**Ast. vii. 2. 014. Square piece of board,** ruled with 21 black lines in one direction and 18 at right angles to first, dividing the surfaces into squares. Placed on corners of squares are a number of black dots proceeding in an irregular diagonal direction from one corner, and a number of white dots proceeding from other corner. Prob. some kind of game. [Prob. *wei-ch'i*, the 'surrounding game' of checkers.—Dr. L. Giles.] 4½" × 4¾". Pl. XCIV.

**Ast. vii. 2. 016. Millet** from sepulchral deposit.

OBJECTS EXCAVATED IN TOMBS OF GROUP viii

**Ast. viii. 1. 01. Fr. of silk damask,** dark crimson. Elaborate pattern, composed of rows of interlacing medallions of lozenges enclosing four smaller lozenges, and of circular jewels surrounded with pearls. Well preserved. 26" × 3". Pl. LXXXV.

**Ast. viii. 1. 02. Frs. of painted silk;** face painted in pale flesh colour outlines black. Very broken and fragile. Gr. fr. 2" × ⅞".

**Ast. viii. 1. 03. Clay figure of man,** standing with legs apart, and hands clenched, R. by side, L. on hip. Wears long close-fitting maroon coat, tied in with black belt at waist and reaching to mid-shin, black top-boots, and round black fur cap; the fur indicated by pit-marks. Fig. tall and slim with broad shoulders and very small waist.

Round face, with marked features of non-Mongolian type; eyes round and prominent, straight-set; nose aquiline with very low narrow bridge and broad at nostrils; thick straight lips, half open; and round cheeks. Heavy low-arched eyebrows, long thin moustache, and fringe of beard and whiskers, painted black on white of face. Good condition. Two stick cores project 1" below soles of boots. H. (without sticks) 14½". Pl. CI.

**Ast. viii. 1. 04. Pottery jar;** with flat bottom, wide shoulder, and small mouth with everted rim. Blackish grey body with traces of red and green paint about mouth and shoulder. Round widest part of latter is band of small quadruple festoon orn. drawn with comb, between two incised rings; under lip a ring of roughly scored sloping dashes. H. 4", gr. diam. 4½".

**Ast. viii. 1. 05. Pottery jar,** large size, in red-and-white spotted black ware as Ast. i. 1. 03, &c., with addition of some emerald green. Ovoid body, flat bottomed; slim neck, and trumpet mouth. Traces of handle on one side of neck and shoulder, broken off and painted over.

Decoration consists of ring of white spots round base of neck; and on body of two series of flower petals as in Ast. i. 1. 03, pointing resp. up and down and separated by band of white spots round middle. Petals themselves carried out in arched lines of white spots with broad emerald-green mid-rib, and divided from each by vertical bands of red spots. Inside of mouth also painted red. Good condition. H. 9", diam. of mouth 3¾", of shoulder 6¾", of base 3¾". Pl. XC.

OBJECTS EXCAVATED IN TOMBS OF GROUP ix

**Ast. ix. 1. 03. Inscribed slab of burnt clay,** dated A. D. 667. Surface roughly smoothed, painted black, and inscr. with eleven columns of Chin. chars. in red. No guide lines or border; inscr. now somewhat dim. [For translation by Dr. L. Giles, see App. *I*, ix.] 14¼" × 14". Pl. LXXV.

**Ast. ix. 1. 04. Fr. of painted silk,** showing head of man almost life-size, ¾ to L. Rather hastily painted, with uneven black outlines, on buff ground. Flesh uniform white; small lips red; moustache and small oblique eyes looking sideways, black; lozenge-shaped mark on forehead, red outlined black. Top and back of head lost; coat red, forming **V** shape with lapels on breast. From painted shroud as Ast. i. 6. 02, v. 1. 02; brittle. 12" × (gr. width) 6".

**Ast. ix. 1. 05. Fr. of painted silk,** in same style as preceding and showing head ¾ to R. Fig. in similar red coat, but head held up, lips curved and apart smiling, eyes much narrowed and brows drawn down. Lozenge shape in black outline on forehead with red streak down centre, and red streak also before ear. Back of L. hand (presumably of another fig.) appears sticking out at back of neck, fingers curled and back to spectator. Broken in many frs., some of which show further R. forearm and hand with fingers doubled. Gr. fr. 13" × 10".

**Ast. ix. 2. 01. Fr. of figured silk face-cover;** from a circular piece bordered by broad yellow pleated silk, plain. Centre made up of several frs., the largest being portions of two adjoining medallions. These show very stylized flower surrounded by band of yellow roundels on dark-blue ground, with rectangular spot at the four cardinal points. Five roundels in each quadrant.

Central flower yellow, outlined with white and dark blue suggestive of Iris. Two long transverse petals in dark green, and two similar in yellow with band of blue pattern crossing each near outer ends. Lower portion missing. Style angular 'Sasanian'. Field yellow; spandrels furnished with geometrical form with flower centre in myrtle green. Twill weave. Diam. of medallion 5¼".

Attached are frs. of another fig. silk of smaller scale pattern, composed of circular medallions of border similar to above but with rectangular spots at sides only, and ten roundels in each semicircle. Within a flat formal rosette. Medallions are divided by vertical bands of geometrical flowers between green and blue lines studded with pearls. The whole in blue and green shade of yellow. Pattern and colour well preserved, but fabric brittle.

Weaving is very good, and of warp-rib type; design strong. Diam. of medallion *c.* 2¼". Size of face-cover, 14" × 12½". Pl. LXXIX.

**Ast. ix. 2. 02. Fr. of figured silk,** in blue, buff, and pink. Pattern in lozenge-shaped divisions, divided by buff stepped rectangles; one side of each rayed, the raying reversed in the upper and lower halves of lozenges, respectively. At the crossings, elliptical spots. Within lozenge, alternately an eight-foiled buff rosette with pink centre outlined blue, and a buff roundel with rayed edge. Background bright blue. Pattern bold and without visible details. Edges of fr. turned under. Brittle and badly faded; all but blue uncertain. Lozenge *c.* 6½" × 3". Size of fr. 10" × 2¼". Pl. LXXXIII.

**Ast. ix. 2. 03. Toilet box, of lacquered wood, with**

round angles. Contents: small silver (?) mirror with embossed lotus design at back and centre boss with remains of crimson silk cord; finely cut wooden comb with low arched back; several 'screws' of paper, one containing a white powder, another a fr. of crimson felt; rest empty. Finely written Chinese characters on most of papers. A few frs. of charcoal. At bottom, a folded paper with large seal impressions in red, and several cols. of Chin. writing in black.

Box seems to have been sealed up with band round edge, and frs. of plain silk are sticking to top. Lacquered black over canvas. Well made and well preserved. Diam. 6¾". H. 3". Pl. LXXXIX.

**Ast. ix. 2. 04. Seven thin bronze plates**, parts of pendant. Two lunette-shaped, two circular, and three pear-shaped. All drilled with small holes for attaching by thread. Brittle. Frs. of crimson thread. Diam. of lunettes 1¼". Circles ⅞" and ⅝". Pear-shapes *c.* ⅞"×⅝". Pl. LXXXIX.

**Ast. ix. 2. 05. Twenty-two glass beads**; blue, green, yellow, and black; one red lac. Pl. LXXXIX.

**Ast. ix. 2. 06. Miniature carriage**, consisting of body of slab of dough. Through it are thrust two parallel wooden twigs for shafts, joined at front end by thin twig as yoke bound with grass fibre. A fourth twig is thrust through body transversely as axle-tree. Two thin cane hoops for hood. Wheels and one hoop missing. See ix. 2. 049, 51. Fragile. Length 8", width of shafts 1½". Pl. XCIV.

**Ast. ix. 2. 07. Many small frs. of iron**, probably of pair of scissors. Badly corroded and with pieces of silk adhering.

**Ast. ix. 2. 08. Two frs. of damask**, brown, finely woven; small concentric lozenge pattern.

**Ast. ix. 2. 09. Many small frs. of silk damask**, stained yellow. Probably similar to *Ser.* iv. Pl. CXVII, T. XIV. v. 0011. a. Very brittle.

**Ast. ix. 2. 010. Fifteen clear green glass beads**, and one small shell; one white, from coffin (*c*). Pl. LXXXIX.

**Ast. ix. 2. 011. Mass of silk embroidery threads**, various colours; found with Ast. ix. 2. 07.

**Ast. ix. 2. 012. Small silk bag**; square blue ground decorated by 'resist' method with delicate conventional floral pattern on ogee plan, introducing birds in yellow. The pattern apparently applied freehand and not by stamps or stencils. Groups of seven berries occur in a second colour. Well preserved. 2" square. Pl. LXXXII.

**Ast. ix. 2. 013. Small silk bag**, made of maroon, yellow, and blue squares sewn together, of which the blue have 'resist' flower spot pattern. Drawing string at mouth. Very fragile. 2½"×3".

**Ast. ix. 2. 014. Frs. of silk patchwork garment (?)**, of unrecognizable form. Squares of yellow damask are divided by bands of green corded damask silk, with squares of plum-coloured damask at the crossings. Flowers and discs are visible on the yellow squares, but no connected pattern can be made out. One edge of article is bound with green silk; cf. Ast. ix. 2. 019, Pl. LXXVII. Very brittle. Principal frs. about 4" square.

**Ast. ix. 2. 015. Mass of silk rags** of various colours. Very brittle. Bundle *c.* 6"×1".

**Ast. ix. 2. 016. Silk gauze** sleeve-like object, with long lozenge all-over pattern; rather involved interlaced pattern in each lozenge. Rich ochre colour; good weaving. Attached to sleeve is what appears to be a shoulder-piece in plain silk. Very fragile. Sleeve 16"×4". Shoulder 9½"×5". Pl. XXXVI.

**Ast. ix. 2. 017. Figured silk frs.**, of 'Sasanian' type from head-cover of body *b*. Probably boar's head pattern. For good example, see Ast. i. 5. 03, Pl. LXXVI. Very discoloured, brittle and broken. Gr. fr. 5"×3½".

**Ast. ix. 2. 019. Fr. of silk patchwork**, with large open square lattice-work made of bars of plain yellow doubled silk 1" broad, with 1" squares cut from 'Sasanian' figured silk at crossings. Size of square openings about 3". For similar garment, but with open squares filled in, see Ast. ix. 2. 014. Brittle. 10"×6". Pl. LXXVII.

**Ast. ix. 2. 020. Mass of small silk frs.** of plum colour finely woven; from plain shirt of body *b*. *C.* 12"×7".

**Ast. ix. 2. 021. Mass of cuttings**, from various silks and cloths, in small rolls tied round with thread. Also pieces of silk wool; 'screws' of paper tied with thread. All fabrics plain; some quite perished. From coffin (*a*).

**Ast. ix. 2. 022. Fr. of figured silk face-cover**, from body *c*. Pattern of modified 'Sasanian' style. On salmon-pink ground rows of rosettes surrounded by twenty-four pearls. Inner ray of petals twelve (pink), outer twenty (pink outlined brown). Spacing of rosettes equal each way.

In spandrel, green rosette composed of ellipse of eight pearls as centre, and from cardinal points four five-pointed palmette leaves, green. All outlines white; cf. v. Falke, *Seidenweberei*, i. Fig. 110 (banner stuff of Mikado Shomu). Lower part perished and missing. Remains of white frill. 6½"×7". Pl. LXXVIII.

**Ast. ix. 2. 023. Paper hat or crown**, painted black. From a band or tenia 1½" wide, encircling head, rises a second band of same width, from centre of forehead over top of head. On each side of it rises a solid piece with rounded top; cf. Ast. vi. 3. 05, Pl. CVII. R. and L. of centre of tenia, and 4" apart, two ⅜" gold transverse bands. In space between gold bands three stars with gold lozenge-shaped points set round coloured centre.

On vertical central band is a transverse narrow gold band 1½" above tenia, with star in intervening space. Similar stars on rounded side-pieces. The narrow gold bands are of yellow silk damask. Stars are of paper, gilded for points. Very fragile. Height from brim to highest part of crown 4½". Length when flattened out 12½". Pl. XCIII.

**Ast. ix. 2. 024. Three figurines,** modelled roughly in a kind of dough. Limbs are represented by mere stumps. Largest 2¾" high. Pl. LXXXIX.

**Ast. ix. 2. 025. Silk garment,** from body *c*; brown, ornamented with broad band of striped silk. Bright yellow predominates; the colours used are white, pale blue, and pale brown in groups of narrow stripes, alternating with broader one. Woven in stripes of reversed twill. Perished and very brittle. Width of band 7½". Pl. LXXVII.

**Ast. ix. 2. 026. Specimen of wheat,** from tomb.

**Ast. ix. 2. 027. Turned wooden urn,** in form of deep basin on clumsily moulded stand. All in one piece; painted black and decorated with bands of white spots on the several base mouldings, with one band round lower part of bowl and with circles of spots surrounding roughly drawn red circles on sides. Inside unpainted and clean. Marks of saw on bottom. Height 12", diam. 8¼". Pl. XCI.

**Ast. ix. 2. 028–31. Four turned wooden food jars.** Slightly swelling sides and broad mouth. Solid with depression in top, painted black with two bands of large white spots. 029 and 030 split. Av. 4½" × 5¼".

**Ast. ix. 2. 032, 033. Two turned wooden bowls,** solid, with depression for food in top. Both contain dust representing all that is left of contents, with a few dry and shrivelled plums (?) in 032. Painted black with rough white dabs. Av. 5" × 3¼". Pl. XCI.

**Ast. ix. 2. 034. Lacquered wood bowl.** Thin, tall, black lacquered over fabric inside and out, containing remains of vegetable food. Diam. 5¼", height 3¼". Pl. XCI.

**Ast. ix. 2. 035, 038. Two turned wooden bowls;** saucer-shaped, painted black, containing remains of food. Av. diam. 5¾" × 1½".

**Ast. ix. 2. 036, 037. Two turned wood bowls,** small, painted black, containing remains of food; in 036 plums. Av. 3⅝" diam., 1¼" height.

**Ast. ix. 2. 039. Pottery jar;** small, squat, with carrying string tied round neck. Probably contained fatty or oily substance, which seems to have percolated through sides and fixed the black paint. Height 2¼", width 2⅜".

**Ast. ix. 2. 040. Pottery saucer.** Probably used as lamp; the partly burnt wick still present. Diam. 3¾", height 1¼". Pl. XC.

**Ast. ix. 2. 041. Pottery dish,** black, containing remains of pastry, fruit, &c. Diam. 7½", height 1¾". Pl. XC.

**Ast. ix. 2. 042. Pottery bowl,** painted black, containing remains of food. Discoloured. 4" × 1½".

**Ast. ix. 2. 043. Miniature wooden duck,** sitting as on water; no neck, but head close down to body. Roughly carved and painted in white, yellow and red stripes from breast to tail. Black feathering with red beak and eyes. Saw-cut at neck. 4¼" × 2" × 1½". Pl. CIV.

**Ast. ix. 2. 044–6. Three discs of smooth bark;** irregular; fine cork-like texture. Av. 1¼" × ¼".

**Ast. ix. 2. 047. Paste fr. of torso of man (?),** in coarse bran-like paste. 3½" × 2¼" × 1⅝".

**Ast. ix. 2. 048, 050. Paste frs. of miniature quadrupeds,** in coarse bran-like paste; *c.* 3⅝" × 1¾" × 1⅞".

**Ast. ix. 2. 049, 051. Two paste discs;** coarse bran-like paste, rounded edges, hole through centre. Prob. wheels of miniature cart, as Ast. ix. 2. 06. Diam. 2¼". Pl. XCIV.

**Ast. ix. 2. 052. Stone-ware dish,** grey with rather sharply upturned rim, containing grapes and other small fruits. Broken into many pieces, now mended. Diam. 6¾, H. 1½", thickness *c.* ¼".

**Ast. ix. 2. 054. Painted silk hanging.** Silk is now dark ivory colour, perhaps originally white. Subject, the legendary Emperor Fu-hsi with his consort, Nü-wa, facing each other ¾" to L. and R. respectively; about ⅔ life-size. The bodies rise from a continuous flounce-like short white skirt, and lean away from each other.

Their two inner arms stretched stiffly and horizontally towards each other and fused into the appearance of one arm joining both bodies; but the hand of each appearing under opposite armpit of other shows that they are embracing.

Both wear close-fitting dull red tunics fastened down centre, with wide-mouthed elbow sleeves. Fu-hsi holds in his uplifted L. hand a mason's square and two other objects not recognizable, but perhaps plummet and lines. Nü-wa holds in her R. uplifted hand a pair of compasses.

Lower edge of their combined skirt is a perfectly straight horizontal line. From below issue two intertwined serpentine bodies which coil round each other guilloche-wise three times, and then open out into two simple tapering tails. Serpentine body is composed of parallel, longitudinal bands of white, black, red, and yellow, each band ornamented with dots or pearls of a contrasting colour, black, white, or red. Sometimes an undulating black line is used instead of pearls.

Between heads is the sun disc, white with red spokes and outlined with red. Outside and surrounding it is a ring of small white discs, outlined red and linked by a single red line; probably representing a constellation. In triangle formed by bodies and their fused arms, in the space between their tails, and down the two sides of the cloth are other constellations. The Great Bear is to the R.

Flesh white with red shading, and red spots on cheeks and ear-like white strips beside face. Hair of Fu-hsi dressed high and smooth. On front, sloping downward and forward towards forehead, is a square white cloth (?), cross-hatched with black.

Upper part of face and most of hair of consort missing; but the top which remains suggests a three-lobed coiffure, as in Ast. ix. 2. b. 012, Pl. CVIII.

Outlines all black, and most of the red has turned black, e. g. the spots on cheeks.

Silk of fine close texture, but perished and ragged; in

three widths sewn together; the centre 17½" wide, the R. strip 12½" wide at top, tapering to 8" near bottom, and the L. 13" to 7½". Bottom perished and missing. Painting coarse. Width at top 43", at lower end 33". Pl. CIX.

**Ast. ix. 2. a. 07. Sheet of cotton (?).** Plain open canvas having on one edge impressions of three or four stamps, in red ink, and a column of Chinese writing in black crossing the red stamps; cf. Dr. L. Giles's App. *I*. The sheet is made of strips of material 22½" wide, sewn together. Perfectly preserved. 7' 7" × 5' 6". Pl. CXXXI.

**Ast. ix. 2. a. 08. Wooden measure.** Rectangular strip of wood marked at intervals with incised lines inlaid with white substance. Broken at one end. Divisions measure, beginning at complete end, 1¼", 1$\frac{5}{16}$", 1¼", 1¼", 1¼", 1¼". Rev. at end an incised Chin. char. Hard wood. 7½" × ⅝" × $\frac{3}{16}$". Pl. LXXXIX.

**Ast. ix. 2. a. 09. Wooden spindle,** with remains of fine thread wound round. Well-made bowl-shaped whorl at end, of black material; prob. lignite. Broken at upper end. 8½" × $\frac{5}{16}$". Diam. of whorl 1¼", height ⅝". Pl. XCIV.

**Ast. ix. 2. b. 08. Basket of woven cane skein;** flat, round, neatly woven. Both basket and lid are of about equal depth, and the edge of each is bound with broad flat strip. Within is a sandal-wood comb, well made and still springy; two folded napkins of fine silk (perished); and six Chinese copper coins with legend *K'ai-yüan*. Diam. 7¾". Depth ⅞". Pl. LXXXIX.

**Ast. ix. 2. b. 09. Pair of metal 'spectacles',** consisting of a thin plate of silver (?), formed like two lotus petals with flattened edges, joined at their narrow ends, end to end; the centre of each petal slightly embossed and punched with a number of small holes. Edges are drilled for sewing on the silk with which the surfaces were covered and of which fragments still adhere. Oxidized but flexible. For others, see Ast. i. 3. a. 04, i. 3. b. 03, i. 5. 04, i. 5. a. 02, i. 6. 07, Pl. LXXXIX. 6" × 2$\frac{5}{16}$".

**Ast. ix. 2. b. 011. Sheet of cotton (?)** from coffin *b*, similar to Ast. ix. 2. a. 07. Within, a sheet of fine buff silk, and two frs. of white silk. Silk perished in places. Chinese stamps in red, and inscrs. in black on two opposite corners; cf. Dr. Giles's App. *I*. Well preserved but perished in places. 9' × 4'.

**Ast. ix. 2. b. 012. Painted silk cover,** of coffin *b*, lower part torn and incomplete. Subject and treatment almost identical with those of Ast. ix. 2. 054, Pl. CIX, but the work rather coarser. Treatment of ornamentation of intertwined serpentine bodies is suggestive of scales, with only a few rows of red pearls. Compasses in R. hand of Nü-wa have a third limb projecting horizontally.

Both faces (which are complete) are more heavily shaded with red; both have Tilaka-like marks on forehead; Fu-hsi has a thin moustache. Constellations down sides do not coincide with those on other similar painting, but the Great Bear is placed to R. in both. Nü-wa has band of hair down R. side of face, and both faces have a straight band of white down side, covering ear. This band is ornamented by a vertical wavy black line, and on that of Fu-hsi with red dots as well.

Fu-hsi has a large pin stuck horizontally through coiffure and an arc in black reaching across top of head. Silk yellowish and of muslin texture. Very brittle and ragged. Width at top 42"; at lower part 39". Length about 4' 7". Pl. CVIII.

**Ast. ix. 3. 02. Fr. of figured silk,** of semi-elliptical shape; made up of several frs. all of the same 'Sasanian' type. Within the usual pearl-bordered medallions are pairs of confronting winged horses. In one row of medallions they are in trotting pose, one forefoot being lifted and head held high on very arched neck. In the adjoining medallions below they have their mouths to the ground as though feeding.

Each probably has the same base, a central patera-like flower on stiff upright stem, with 'acanthus' leaves trailing right and left and trefoil leaf below. But in the grazing scene a tree rises through centre, the foliage being arranged in seven compact pyramids, three immediately above each horse's back, and one centre slightly higher.

Medallions joined in the horizontal direction; the junction covered by rosettes. Vertically they are about ¾" apart, but space is bridged by a larger rosette. There are four pearls or roundels in each quadrant. Spandrels have four-armed floral device proceeding from central flower. Colours all faded, but outlines and medallion borders are now pale brown or greenish blue, according to the band of colour in which they fall. Warp-rib weave. Probably Chinese work. Very faded.

For shape of object, cf. the cushion cover, *Ser.* iv, Pl. CVI, Ch. xxii. 0019. 13" × 6¾". Pl. LXXX.

**Ast. ix. 3. 03. Fr. of figured silk,** designed in bands. On top, pairs of confronting phoenixes with uplifted wings and tails; legs quite straight shown in dark blue on yellow ground; outlines and legs lighter yellow. Above each pair, a bisymmetrical acanthus scroll in green, probably lower part of missing band of orn.; below and between the pairs a similar scroll reversed, but with an upright stalk from centre carrying a five-pointed palmette flower, outlined in blue.

Below are two bands of rectangular billets, alternately yellow and blue both horizontally and vertically. Below this a band of pale yellow lozenges with green centres; then two more billet bands, as above.

Below these a band of large medallions containing an eight-petalled flower outlined white on green ground, with green octagonal centre from which green mid-rib passes into petals. Border of medallions shows pale 'Sasanian' pearls on yellow spandrel filled by palmette. Very good Chinese work; twill weave. Remains of lining and frill at upper edge. 6" × 4¾". Pl. LXXVIII.

**Ast. ix. 3. 04–5. Pair of small pottery saucer bowls;** coarse black, with white-spotted decoration, as Ast. i. 1. 03, &c. Remains of decayed vegetable food in each, and

grapes also in 04. H. 1¼" to 1½", diam. of mouth 3⅜". Pl. XC.

**Ast. ix. 6. 01. Lid of basket,** woven in fine cane skein. Oblong, with all sides convex, giving beautiful form. Pattern of weave is 'twill', the weave in adjoining quarters being reversed. Bands of blue-stained cane are carried in straight lines at even distances across short way of lid. Sides of lid composed of bands of cane the full depth of lid, worked over by the thin skein from top. A thin round cane is laid all round under edge to give a finish. Very good work. 11⅞"×6¼"×⅞". Pl. XCIII.

**Ast. ix. 6. 06. Five pastry frs.,** in form of animals rather bear-like. Heads missing, and some of the limbs. One broken in small pieces. Through each is a thin twig as a core on which to press the paste. Fragile. Length about 3".

**Ast. ix. 6. 07. Small cushion,** of flax (?) canvas, stuffed with grass. 11"×4". Pl. C.

**Ast. ix. 6. 08. Pottery jar,** of broad amphora shape but without handles. Out-turned rim, rounded on top. Band of four roughly incised lines of chevron orn. between incised annular lines round widest circumference, and one line of chevrons round neck. Grey, with exterior distempered black and traces of painted decoration similar to Ast. i. 1. 03. Sand-encrusted and discoloured. H. 4"; diam., base, 2½", rim 2¾", gr. at shoulder 4½". Pl. XC.

OBJECTS EXCAVATED IN TOMB x. 1

**Ast. x. 1. 01. Frs. of twill silk,** dark cream, with quarry pattern in rows of alternate pink brown and light green buff; each quarry divided into four by two diameters. Quarries are placed in chessboard order. Largest piece 3¾"×2½". Warp perished. Pl. LXXVIII.

**Ast. x. 1. 02. Frs. of fine silk gauze,** small lozenge as Ast. i. 7. 04. Colour brown. Very fragile. Pl. XXXVI.

**Ast. x. 1. 03. Frs. of figured silk,** in brown and blue on pale buff ground (faded); same pattern as Ast. i. 7. 06. Pieces have taken shape of some rounded object, for they may have formed a long narrow case. 4"×1½". Pl. XXXVI.

**Ast. x. 1. 04. Fr. of printed silk** (two pieces joined); blue, yellow stripes about 2¾" wide. On yellow, an elliptical bunch of leaves and flowers repeated at intervals of 1½", with two small rosettes furnishing the space.

On blue, a palmette-shaped bush (yellow) on which two confronting ducks with upraised wings; bush repeats opposite intervals in yellow stripe. Two small palmettes in spaces.

Ground of fabric mustard yellow. Printing, a fine blue with green tint from combination with yellow. Surface calendered; printing blurred. Well preserved. 29"×15". Width of silk 22". Pl. LXXXII.

**Ast. x. 1. 05. Frs. of figured silk,** from a garment. Three are carefully shaped, by pinking and turning under, into small leg-of-mutton shape. One is a band with edges turned under, attached to pieces of yellow damask, and lined with coarse canvas. Remaining two are portions of a similar band.

Pattern consists of rows of six-petalled elliptical rosettes, blue, with buff centre and brown markings in petals. Space between rosettes ⅝", space between rows 1". Rosettes in one row are opposite spaces in next.

Between rosette rows is a row of pyramidal bushes with bright green leaves lined brown, and blue flowers, placed point towards interval in one rosette row and base resting on rosette below. Above pyramid between two rosettes a small leaf or flower (faded) veined blue, the character varying in different rows. Above this a four-petalled blue flower. All a good deal faded.

Damask has a bold floral design, not very good, on ogee lines. Gr. frs. 10½"×1¾". Damask 9½"×3¾". Pl. XXXVI, LXXXV.

**Ast. x. 1. 06. Frs. of figured silk.** Pink ground (generally faded to buff or yellow), large blue six-petalled rosettes, with red and blue centre outlined yellow, and russet in petals. Between these are small yellow six-petalled rosettes with blue and red centre. Below small rosettes blue flowers in profile between two green leaves with crossed stalks. Below rosettes repeating bunches of leaves with blue flowers in profile and then the blue flowers with crossed stalks reversed. All warp perished. Largest piece 11"×2". Pl. LXXVIII, LXXXIII.

**Ast. x. 1. 07. Frs. of figured silk.** Two strips in twill weave. Blue ground with fine bold rosettes faded to buff. Centre of rosette is a four-petalled flower with heart-shaped petals. Surrounding this a clever design of linked palmettes, alternately of the fleur-de-lis and flower in profile type. A second type of rosette alternates in adjoining row, but only a portion of this is present. Well preserved. 11½"×1½". Pl. LXXIX.

**Ast. x. 1. 08. Figured silk.** Collection of frs. of elaborately striped material. Type same in all, with variations in details.

Chief stripe is dark blue with six-petalled buff rosettes; on each side of this are narrow yellow, brown, and buff lines; on one (brown) small buff rings. Outside this are stripes shaded blue, brown, yellow, buff, light yellow, pale green, dark green, blue, brown and so on, all narrow lines. The effect is very lively. Warp perished. Cf. *Ser.* iv. Pl. CVII, Ch. lv. 0028. Gr. fr. 7"×2¾".

**Ast. x. 1. 09. Clay head of demon;** same grotesque type as Ast. vii. 2. 03, but features exaggerated in all respects. Peak of hair painted dark red; flesh reddish pink, with black moustaches and tuft of beard on chin; arched eyebrows in high relief, green with cross-lines of black. Eyeballs white in vermilion sockets, irises of eyes green

with black ring inside and out, pupils vermilion. Inside of lips vermilion, and white tusk protruding from each corner of mouth. Peak of head cracked, and tip broken off. Straw core projects above and below. Length of head 12", with core 16½"; gr. width *c.* 6". Pl. CI.

**Ast. x. 1. 010–11. Two clay figs. of women,** standing; soft red fibrous clay, on stick cores. Of heads only front halves remain, detached from cores. R. side of face and L. forearm of 010, and R. arm of 011, lost. Extant arm of each hangs slightly flexed by side. Figs. plump, high-waisted and long-necked, with large heads.

Dress consists of plain close-fitting bodices, open **V**-shape from front of neck to waist; long sleeves wrapped round arm and hanging below hand, and skirts hanging straight to feet. Bodice of 010 vermilion with white stomacher; skirt light blue, with sprinkled palmettes in black. Bodice of 011 light blue, stomacher and skirt white. Faces large and full, with oblique eyes, and green patch in middle of forehead of 011.

Hair black, done straight up back, in low roll on forehead, and in two stiff projecting masses on either side of forehead. Topknots, if any, broken off. No jewellery. 010 has black shoes. White paint of faces almost entirely lost. Heavy work, drapery not modelled on back. H. 10½", with cores 11¼". Pl. CIII.

OBJECTS ACQUIRED FROM ASTĀNA CEMETERIES

**Ast. 01. Lacquered wooden tray,** shallow, oblong, with slightly curved sides, rounded corners, and narrow fish-tail shaped projections, extending nearly the width, at each end as handles. Shallow concave. Centre rectangle black, surrounded by broad border of red. Extreme edges, handles, and back black. Very graceful shape. No canvas under lacquer, which appears to be applied directly to the wood. Excellent condition. 19¾" × 12½". Pl. XCI.

**Ast. 02. Six paste and glass beads;** three blue, two green, one yellow. Gr. diam. 7/16". Smallest 1/16". Pl. LXXXIX.

**Ast. 05. Turned wood tazza,** or pedestal with broad foot, stem tapering upwards, and abruptly broadening into a shallow cup. Painted black, with ornament in white line; round foot a series of six drifting palmettes; round stem a horizontal meander between two lines, a band of small circles below and another of dots above. Drifting palmettes, of which six are present round outer rim of cup. Cup broken at edges. Height 3¾", diam. of cup 4⅜".

**Ast. 06. Small pottery jar,** with ovoid body, flat bottom, and short neck with slightly thickened rim. A two-ply cord twisted twice round neck, and another knotted to it to make loop for carrying. Grey body, discoloured black, probably owing to oil. Empty. H. 3⅜"; diam. of bottom 1¾", of shoulder 3¼", of mouth 1½".

**Ast. 07. Pottery saucer;** grey body, hard fired; wide and flat bottomed, no orn. Discoloration caused by decayed food inside. Diam. of rim 6¾", of bottom 5¼"; h. ⅞".

**Ast. 08. Paper flag,** made of several thicknesses of Chin. MS. pasted together, and painted outside in horizontal stripes of black and white. One side then pasted round sq. stick. Flag apparently incomplete in length. H. 18", length (from stick) 7", stick 20½". Pl. XCIII.

**Ast. 09. Inscribed burnt clay slab** from tomb. Square; surface painted black and inscr. with 5 columns of Chin. chars., in large clear writing. Chars. first incised and then coloured red; for translation, see M. Maspero's App. *A*. Good condition. 15" × 15½". Pl. LXXV.

**Ast. 010. Inscribed burnt clay slab,** from uncertain Astāna tomb, dated A. D. 681. Square; surface covered with layer of buff paint on which are inscribed 11 cols. of Chinese chars. in black, fairly preserved. For translation, cf. M. Maspero's App. *A*. 14½" × 15". Pl. LXXV.

## Section VII.—CONCLUSION OF WORK AT TURFĀN

Return of Lāl Singh.

While our work at the cemeteries of Astāna was proceeding, there were other matters also to claim my attention. On January 23rd I had the relief of seeing Lāl Singh return safely from his explorations in the Kuruk-tāgh region, after an absence of close on two and a half months.[1] I have given an account elsewhere of the important results achieved by him on this occasion, under exceptional hardships and privations,[1a] and Map Sheets 29, 31, 32 illustrate the extent of the surveys effected by my valiant assistant in that desolate region. It will suffice to mention here that he surveyed a new route to Singer, the only inhabited spot in that vast area of utterly barren hills and plateaus, and then extended a system of triangles down to the salt springs of Āltmish-bulak.

Surveys in Kuruk-tāgh.

After patiently waiting under very trying conditions for the chance of a break in the dust-haze above the Lop Desert, he obtained from Āstin-bulak a sight of the K'un-lun range some 130 miles to the south. He was thus enabled to connect his triangulation work in the Kuruk-tāgh with what

[1] Fig. 332 shows our small party reunited at Idikut-shahri.

[1a] Cf. *Memoir on Maps*, p. 36.

he believed to be a peak fixed by intersection in the course of the previous year's work south of the Lop basin. He subsequently carried his surveys into wholly unexplored portions of the Kuruk-tāgh far away to the north-east, over ground devoid even of the scantiest vegetation. At last, when the fuel for melting the ice upon which he and his little party depended for their water was completely exhausted, he was obliged to turn back, in order to regain the Turfān basin at its south-eastern extremity, as I had planned. Thence, before rejoining me at Kara-khōja, he carefully surveyed the deepest portion of the basin along its terminal salt marsh and determined its depression below sea-level, with greater accuracy than had been previously done, as close on 1,000 feet.

**Planned surveys in Lop Desert.**

Lāl Singh allowed himself only a few days' rest after these exhausting travels; with indefatigable zeal he then set out afresh for the extension of the triangulation work from Singer towards the foot of the T'ien-shan near Korla. It was a task that I was anxious to see carried out by him before the arrival of the season of dust-storms in the spring. Arrangements for Lāl Singh's prompt start with fresh supplies, instructions, &c., had therefore to be made simultaneously with the equally urgent preparations for the expedition by which I wished, both for geographical and archaeological reasons, to supplement our surveys of the previous winter in the Lop desert. These surveys were possible only while the winter cold made work possible in that wholly waterless area. It was with deep regret that I had to forgo the chance of carrying out those explorations myself; but my injured leg, though its condition was improved, would not have been equal to the fatigue of long tramps over such difficult country. I was fortunately able to entrust these further surveys with some confidence to Afrāz-gul; for the experience of the preceding eighteen months' explorations had shown him to be possessed not merely of pluck, zeal, and topographical skill, but also of an intelligent comprehension of their antiquarian purpose. In view, however, of the physical difficulties and risks involved, specially careful arrangements and instructions were needed to ensure that my plans should be executed without danger to the young surveyor and his small party. How successfully he discharged his trying duties will be subsequently related.

**Preoccupations about dispatch of antiques.**

While proceeding with the explorations at Astāna and with the preparations for the Surveyors' expeditions, I was also much occupied with the completion of our work in the Turfān basin and with the safe dispatch of my collection of antiques, now greatly increased in bulk, to Kāshgar. Anxious as I was personally to assure its security, it was impossible to drag about with me these loads, which, when all the wall-paintings from Bezeklik had been removed and packed, amounted to 145 cases weighing over eight tons; for before rejoining the high road along the foot of the T'ien-shan at Korla, I contemplated crossing the Kuruk-tāgh to certain ancient remains by the Kuruk-daryā and proceeding thence along the continuation of the ancient Lou-lan route to the north-west. Independent arrangements had therefore to be made for the dispatch of the antiques to the safe shelter of the Consulate General at Kāshgar, and in the first days of February I observed signs calculated to make me hasten these arrangements, as well as the conclusion of my excavations at Astāna.

**Apprehensions of intended obstruction.**

Communications from the well-meaning District Magistrate of Turfān, politely conveyed yet unmistakable in their disquieting import, indicated that official inquiries had been made from head-quarters at Urumchi as to the reasons for my prolonged stay in the district, the character of my work, &c. They emanated from the same agile Secretary for Foreign Affairs to the Provincial Government who had been principally concerned in the attempt at obstruction which in the preceding year had so nearly frustrated my plans. There was reason to fear that our prolonged explorations near Murtuk and Astāna, in the immediate vicinity of oases, and still more the many cases which their proceeds had added to my baggage (together with appropriate rumours as to their precious contents), would furnish that keen representative of 'Young China' and champion

of its 'rights-recovery' policy with convenient grounds for renewing the attempt. This time obstruction would be made easy enough, so far as the antiquities were concerned, by the production of republican edicts (existing, it is true, solely on paper) prohibiting their export; or reference might be made to far more ancient ordinances, which were at one time really enforced, against the desecration of graves. Chinese officials, no doubt, both from Turfān and Urumchi, had during recent years done their best to promote it, by encouraging indiscriminate local spoliation for the sake of securing curios for themselves; but this fact would be conveniently ignored.

Dispatch of collection to Kāshgar.

It was of course possible that an attempt might equally be made to interfere with my convoy of antiques on its long transit to Kāshgar, a journey for laden camels of at least six weeks. But I assumed, rightly, as it turned out, that regard for appearances and the fear of possible diplomatic consequences in case of any loss would make such interference less probable if I was myself far away. The responsibility for the safety of the suspected cases would then fall on local officials, who would be by no means eager to accept it, since no personal profit was to be gained from the detention of the cases. So I did my best to hasten the dispatch of the caravan. By February 5th the last big batch of cases containing frescoes had been duly brought in from Bezeklik by Naik Shamsuddīn, who, working at his troublesome task with untiring energy, had valiantly contributed to their successful removal. A day later I saw with no small relief the long string of forty-five laden camels starting for their distant destination under the care of Ibrāhīm Bēg, the veteran factotum who had accompanied me on three journeys. Setting about his task with his usual steady self-reliance, he was once more to carry it through successfully. On the same day Afrāz-gul set out across the Kuruk-tāgh for his difficult work in the Lop desert. I had given him the seven strongest of our camels, plucky Hassan Ākhūn to manage them, and as guide as far as Āltmish-bulak, Abdulmalik, a worthy brother of Abdurrahīm, the hunter of wild camels. His instructions were, if all went well and if he could keep closely to the programme that I had laid down for him on the basis of our preceding surveys in that desolate region, to rejoin me about March 11th at the ruins of Ying-p'an at the head of the Kuruk-daryā.

Start of Afrāz-gul for Lop Desert.

Move to Yār-khoto.

Eager as I was myself to exchange the quasi-suburban conditions of the Turfān oases for the greater freedom of new ground in the desert, I nevertheless put off my own start to the south for the sake of a renewed examination of the ruined site of Yār-khoto, the early capital of the Turfān basin and the *Chiao-ho* 交河 of the Chinese Annals. The rapid visits I had paid to it during my short stay at the Yangi-shahr of Turfān in November, 1907, had shown me that a closer survey of its remains was desirable, even though the physical conditions of the site, already recorded in the account of those visits,[2] and the prolonged exploitation to which the ruins had been exposed, left no doubt that useful archaeological work there must be limited. On February 9th I arrived at Yār-khoto with the above object and in order to test what chances of fruitful excavation a few of the ruined shrines might still offer. But my stay at the site was made even shorter than I had intended by that interference from Urumchi of which I had already seen symptoms while still at Kara-khōja.

Protest raised against excavations.

On February 11th I received a verbal message from the Hsien-kuan of Turfān requesting me to stop the excavation work started on the day after my arrival. An official letter from him which reached me next day revealed the fact that his request had been rendered necessary by stringent orders from Urumchi. In these the Tu-t'u or Provincial Governor raised his protest against the excavations, on the ground, as I expected, that they involved a spoliation of China's ancient inheritance; the Governor desired to be duly informed of the nature and extent of the collection formed by me. The kindly Tungan Amban, who, as a good Muhammadan, did not

[2] Cf. *Serindia*, iii. pp. 1167 sq.

profess any special interest in such heritage of China's antiquity as paintings of Buddhist idols and rags from heathen tombs, was probably quite as glad as I was that the timely departure of my convoy of cases relieved him of any obligation to furnish the desired information. On the other hand, it seemed but a small concession to hasten by a few days my own start for the Kuruk-tāgh, and by disappearing into the 'Gobi' to afford him relief from all further trouble about myself and my doings. In deciding upon this course I was prompted quite as much by the wish of avoiding what might serve as an excuse for an attempt to interfere with my convoy while in transit, as by desire to see Muhammad Yāqūb's work satisfactorily concluded. For an inspection of the plane-table sheets brought by him to Yār-khoto showed that his detailed survey of the Turfān depression was then still far from completion.[3]

Survey of Yār-khoto site.

These considerations obliged me to bring my stay at Yār-khoto to a close on February 13th and did not allow me to make as close a survey of this impressive site as might otherwise have been possible.[3a] Our excavation work, too, had to be confined to a portion of the large Buddhist shrine, marked I in the sketch-plan Pl. 35, that did not appear to have been completely searched before. The ruins of Yār-khoto, remarkable both for their unusual character and the conspicuous position occupied by them, have attracted the attention of all European explorers who have visited Turfān since Dr. Regel, and the excavations conducted by the successive expeditions of Professors Grünwedel and Von Lecoq are known to have extended to different parts of them. As, however, I am unable to trace any special account of the site other than the brief description contained in Dr. Klementz's preliminary report,[4] the sketch-plan Pl. 35 prepared on my renewed visit and some rapidly gathered notes on characteristic features of the ruins may prove of use.

Topographical character of site.

The ruined town of Yār-khoto owes its striking appearance and also the survival of many of its structures to its having been built on an island-like plateau rising high above the ravines or 'Yārs' which surround it. This topographical fact accounts for the natural strength of the position occupied by the town and explains why its buildings, whatever damage they were otherwise exposed to, were absolutely safe from the effects of moisture carried over the ground by streams or irrigation and from direct encroachment by cultivation. The same position renders it also certain beyond all doubt that *Yār-khoto*, the name, half Turkī half Mongol, by which the ruined town has been known since medieval times, is identical with the town of *Chiao-ho* 交河 'the interlacing rivers', which the Chinese Annals from Han to T'ang times mention as the capital of Anterior Chü-shih or Turfān.[5]

Natural strength of position.

The plateau, as seen in Pl. 35, stretches for over a mile from north-west to south-east, with a maximum width near the middle of about two furlongs. Two deep-cut 'Yārs', each between

[3] Curiously enough, no objection was taken by the Urumchi authorities to any of the surveys carried out since our return to Hsin-chiang in the preceding autumn, even though the permission obtained from the Central Government through the prompt help of H.M.'s Minister at Peking referred only to *archaeological* surveys; cf. above, i. p. 320.

Muhammad Yāqūb's one mile to the inch survey could in no way be brought within this category. But it was continued without hindrance among the villages to the south of Turfān town even after my own departure. That it could not be extended to the westernmost portion of the basin, about the oasis of Toksun, was due only to the fact that the surveyor, a slow worker, did not find sufficient time for the purpose before he had to rejoin me at Korla by the close of March.

[3a] This applies also to the sketch-plan of the site, which was prepared by Muhammad Yāqūb without my being able to afford the requisite direction as to details. For this reason no attempt was made to distinguish the more important ruins within the closely occupied portions of the town. Also the delineation of its main roads is not as accurate as it might have been if Afrāz-gul's help had been available.

[4] See Klementz, *Nachrichten über Turfan*, pp. 24 sqq.

[5] The identification is clearly indicated by the *Ming Shu* (see the extract translated by Bretschneider, *Med. Researches*, ii. p. 191) and was rightly accepted by Dr. Klementz, *Nachrichten über Turfan*, p. 28. The Later Han Annals distinctly tell us of the town of Chiao-ho: 'A river bifurcates and surrounds the town; that is why it is called *Chiao-ho* (interlacing) rivers;' cf. Chavannes, *T'oung-pao*, 1907, p. 211.

120 and 200 yards wide on the average, adjoin the long sides of the plateau and unite where its south-eastern end tapers into a prow-like edge of cliffs. At the opposite end the plateau is cut off from its continuation to the north-west by a natural fosse, about 50 to 60 yards wide, formed by a small branch which the more easterly of the two 'Yārs' has thrown out towards the other. Small streams flow in both Yārs. These are ordinarily fed by springs, in which subterranean drainage from the valleys of Yoghan-terek and Shaftalluk comes again to the surface;[6] but they occasionally also receive water from heavy floods descending from the mountains. The bottom of these deep Yārs lies, near Yār-khoto, about a hundred feet, on the average, below the level of the plateau and of the cultivated area to the east; they owe their formation, no doubt, to the greater volume and eroding force of such floods at a former period. The alluvial clay through which these streams have carved their way falls off along the edges of the plateau in vertical cliffs, unscaleable in most places and from 95 to 110 feet high where I measured them. These cliffs provided the town with natural walls of almost impregnable strength, easily defended from above and practically proof against breaching or mining, though, of course, affording no protection against projectiles discharged from the ground on the other side of the Yārs.

Approaches to plateau.

Approach to the plateau occupied by the town lies only at two points. Near its south-eastern end a winding track, evidently going back to ancient times and artificially improved, gives access to a spot where the plateau top slopes down to about 75 or 80 feet above the bottom of the adjoining Yār. The only other track by which the plateau can be gained now lies in a steep little ravine ascending near the middle of the north-eastern edge. This ravine communicates above with a narrow and deeply cut gully forming a lane and lined by ruined houses, and is flanked lower down by massive remains which look like watch-towers cut from the clay. It hence appears probable that this approach likewise dates from ancient times.

Group of ruined Stūpas.

The lower and broader half of the plateau lies towards the south-east and is closely occupied by the ruins of the town. The other half is a waste of bare clay but for scattered remains of ruined shrines, obviously Buddhist, and some small cemeteries of a type resembling those of Astāna. Among the former the most striking is a ruined structure, marked IV in the sketch-plan and seen in Fig. 279 of *Serindia*, which in its ground-plan and style must, when intact, have closely resembled the curious temple (P) at Idikut-shahri, described by Professor Grünwedel.[7] Of the eighty small tower-like Stūpas ranged in four symmetrical groups round the central group of a large and high Stūpa with four others flanking it, all but two had been reduced to shapeless heaps of debris. These appeared to have been little dug into for manuring earth, and a systematic clearing of the debris might possibly still have revealed remains of votive deposits.

Ruins of two large Vihāras.

Two other conspicuous ruins found in this open area are evidently Vihāras, containing within a rectangular enclosure of high walls of stamped clay a cella once occupied by cult-images as well as rooms grouped around a court. Both these two ruins had evidently been searched. But in the one marked I, of which a plan is shown in Pl. 26, and a photograph in Fig. 333, careful clearing of the passage i along the north-western side of the cella brought to light from among the debris thrown there several fragments of block-printed Chinese and Uigur texts, including two with glosses in Brāhmī script. Other manuscript and block-print remains in Chinese and Uigur were purchased from men engaged in digging for manuring earth at small ruins near the northern edge of the town area.[8] They all help to confirm the conclusion, to which other evidence points, that the

[6] See Map No. 28. B. 2, 3.

[7] Cf. *Idikutschari*, pp. 31 sq., Figs. 24-27.

[8] From them was acquired also the following fragment: **Yār. 01. Fr. of clay mould** for rectang. tile. Grey, burnt hard. Within high outer edge comes, first, row of bead orn.; then border of Byzantine acanthus-leaf scroll pattern in panels mitred at corners, and in centre narrow vertical panels containing similar acanthus scrolls running vertically, each panel framed by raised moulding (in cavetto in mould). One corner of mould preserved. 3¼" × 5".

occupation of Yār-khoto had continued down to the Uigur period.[9] That the rooms on either side of the court and cella had served as monastic quarters was shown by niches in the walls, which had evidently been used as cupboards, as well as by blackened passages cut into the clay of the outer walls, at corners suggesting the position of fireplaces. Holes for rafters in the massive clay walls, still rising to 17 feet and more, showed that there had been at least one upper floor. It was instructive to note that the enclosing main walls up to a height of 5 feet consisted of the natural clay left to form a base, while the ground on either side was dug away, and also that the rooms near the main gate had their floor considerably below the level of the court. This method of providing basement rooms not needing any masonry by excavation from the hard clay may be observed in most of the ruined dwellings of Yār-khoto. These basement rooms were obviously resorted to during the fierce heat of the Turfān summer, just as the 'tai-khānas' are at Peshawar and elsewhere in the extreme north-west of India, on account of their comparative coolness.

**Yārdangs and tombs on N. end of plateau.**

On the flat ground clear of ruins towards the northern extremity of the plateau it was interesting to note how the bare clay surface had been furrowed into rudimentary Yārdangs from one to two feet in depth. Their bearing from north-west to south-east showed clearly that wind-erosion was here due to the violent winds which 'aspiration' carries down into the Turfān depression during the spring and summer through the gap in the T'ien-shan marked by the Ta-fan-ch'êng saddle on the road to Urumchi. That this erosion has not proceeded farther is to be attributed to the fact that the Yārs along the plateau stop the direct access of drift-sand, though, of course, they do not prevent particles being carried through the air and swept over the plateau surface.[10] The tombs to be seen on this ground were arranged in small groups, as they are near Astāna, but the approach trenches to some of them were wider. In one place a small sunk court gave access to the passages leading to several tomb chambers. All tombs appeared to have been opened long ago and repeatedly searched. The extensive cemeteries scattered over the Sai to the west of Yār-khoto appeared to have been similarly treated. A number of small tomb chambers seen exposed along the lower portion of the cliffs on either side of the western Yār were quite empty.

**Large Buddhist sanctuary, Yār. II.**

That portion of the plateau which bears the ruins of the ancient town of Chiao-ho may be divided into two fairly well defined areas. The northern and larger one, of which Fig. 326 gives a comprehensive but rather distant view, is closely occupied by the ruins of what manifestly were for the most part dwellings, often considerable in size. Several clearly recognizable roads pass between them, the two widest extending along the longitudinal axis of the plateau and connecting with shorter transverse roads. Near the top end of the western main road rises a very conspicuous pile of structures marked II in Pl. 35. It comprises a large temple in the centre, and grouped on its flanks and along the sides of a big rectangular enclosure, measuring about 60 by 80 yards, a series of minor shrines and halls, as seen in Fig. 331. Within the main temple stands a massive tower-like brick pile,[11] of the type of the *tura* of Sirkip and the Taizan of Astāna. Some of the niches arranged in rows on all four faces still retain the seated Buddha images in plaster with which they were adorned. There can be no doubt that this big Vihāra, which from a distance presents

[9] Cf. *Serindia*, iii. p. 1168.

[10] It may be conveniently noted here that I was able to observe the effects of wind-driven sand also on the ground to the east of Yār-khoto. Riding across the village lands towards the most fertile portion of the Yār-mahalla tract where my camp C. 243 stood (Map No. 28. c. 3), I noticed about half a mile from the eastern 'ghol' (or Yār) of Yār-khoto a belt of uncultivated ground, in places overrun by small dunes. A clay wall had been built to stop their farther extension. Farther on I came upon fields which, instead of being manured with loose earth brought from the ruins of Yār-khoto, had big lumps of clay scattered over them. According to Zahīd Bēg, the local headman accompanying me, these clods are left after the autumn flooding of the fields for the purpose of protecting the surface from erosion and of catching the dust which the 'Burāns' drive along here. This dust, when thus caught, was said to suffice as a fertilizer.

[11] See *Serindia*, iii. Fig. 278.

the appearance of a veritable stronghold, was the chief Buddhist sanctuary of the old Turfān capital. Most, if not all, of the shrines and halls appeared to have been previously searched, and diggers for manure had for years past been engaged each winter in removing the debris. Their destructive operations seemed now to be directed chiefly towards this northern end of the town, and had been so extensive during the seven years which had passed since my first visit to the site that I could no longer recognize the position of the two small temple cellas that I had then cleared.[11a]

Central shrine and residences.

Descending from the main gate of II one reaches a ruined shrine which, though not of large proportions, is made conspicuous by its isolated position at a point where roads converge.[12] Its base, 13 feet high, is entirely cut out from the live clay and thus serves as a measure of the immense amount of earthwork involved in the excavation of the roads and of all the basement portions of the dwellings; for all these lie far below the natural surface level of the plateau. The walls of the single cella constituting this shrine and measuring about 44 feet by 34, are built, up to a height of 5 feet, of big blocks of pisé; then of thin layers of stamped clay for another 7½ feet; while on the top there is broken masonry, still rising to about 5 feet, composed of bricks 13" × 7" × 4". Similar methods of construction were to be observed in other buildings of the town. From the temple just mentioned, the exact character of which there is nothing to indicate, the main road continues practically straight for about 300 yards. It is flanked on either side by a confused agglomeration of ruins, most of which clearly belong to dwellings of some size, as seen in Figs. 327, 328. To the west of the road and close to the precipitous edge of the plateau rise several buildings, distinguished by their size and particularly massive construction (Fig. 330). There can be little doubt that they represent palaces or official residences, and I regret that the interference above referred to deprived me of the chance of studying and measuring at least a few of them.

Massive construction of walls.

But there are many other ruins in which the dimensions of the rooms or halls and the massive character of the walls lead one to infer that they were houses built and occupied by persons of consequence. In most cases what is left of these buildings comprises only the basements cut out of the live clay and portions of the superstructure of stamped clay so solid as often to be with difficulty distinguished from the natural rock. Yet the walls in many places still rise to 20 feet and more. Openings for doors or windows are seen mainly in the upper portions, along with niches which served as cupboards, and with rows of holes evidently for rafters bearing successive floors. In a region like Turfān, where timber must always have been expensive, the use of this material would alone suffice to indicate some measure of wealth.[13]

Use of underground rooms.

Judging from the thickness of the lower walls we seem justified in concluding that they were intended to support upper stories built of bricks and suited for occupation in the winter, when sunshine is eagerly sought for by the people of Turfān. The large underground rooms cut into the natural soil must on the other hand have provided, during the torrid summer months, cool and comfortable quarters such as the modern Turfānlik tries to secure by his vaulted 'kemers', which are necessarily of very modest dimensions and consequently stuffy. How much of ancient Chiao-ho town was in reality built below the natural level of the plateau may be gathered by looking at the latter as it appears in the background of the photograph reproduced in Fig. 329; this shows ruins extending towards the caves of 'Zindān' in the southern part of the town.

Wells found in ruined dwellings.

Debris must gradually have filled up many, if not most, of these underground apartments, as the houses were abandoned and the superstructures crumbled away. But the *tōpachis* or diggers

[11a] See *Serindia*, iii. p. 1168.

[12] See *Serindia*, iii. Figs. 275, 276.

[13] It is instructive to compare the spacious ruined dwellings of Yār-khoto with the rabbit warrens of narrow vaulted passages and cellars in which the inhabitants of a small agricultural settlement, like the one represented by the ruins of Chong-Hassār, sought protection from the summer heat; cf. *Ser.* iii. p. 1161, Fig. 265.



326. GENERAL VIEW OF NORTHERN AREA OF RUINED TOWN OF YĀR-KHOTO, SEEN FROM SOUTH.



327. RUINS OF LARGE STRUCTURES IN CENTRE OF NORTHERN AREA, YĀR-KHOTO.



328. RUINED HOUSES TO EAST OF MAIN ROAD, YĀR-KHOTO.



329. STRUCTURES EXCAVATED FROM CLAY TERRACE (ZINDĀN) AND OTHER RUINS IN SOUTHERN AREA, YĀR-KHOTO.



330. LARGE MANSION TO WEST OF MAIN ROAD IN NORTHERN AREA, YĀR-KHOTO.

331. RUIN OF LARGE BUDDHIST SANCTUARY, YĀR. II, YĀR-KHOTO, SEEN FROM SOUTH.

332. GROUP OF MY PARTY AT IDIKUT-SHAHRI, TURFAN.
From left to right: Ibrahim Bēg; R. B. Lāl Singh; self with 'Dash III'; Mūsa Akhūn; Afrāz-gul Khān; Jasvant Singh. Ruin of 'Khitai-madrasah' in background.

333. RUIN OF BUDDHIST VIHĀRA, YĀR. I, YĀR-KHOTO, SEEN FROM SOUTH-EAST.

for manuring earth have been at work here so long and so assiduously that the natural soil has been reached in most ruins of this main portion of the town and only light sand deposited by the winds covers it now. How high the debris accumulations within the basement walls may have been, and how much of their archaeologically interesting 'refuse' contents has been lost by transport to the fields of Yār-mahalla, it is now impossible to determine. We owe it, however, to these industrious, if humble and unscientific excavators, that the question as to the town's water-supply can be answered with certainty. It was doubly important at a site which owed its occupation mainly, if not solely, to its character as a natural stronghold. Owing to this removal of the debris it is possible to trace in most of the ruined houses the wells, circular and usually 2 to 2½ feet in diameter, by which the inhabitants drew their water from the natural level of subterranean drainage about a hundred feet lower down. It is clear that the skill with which the modern Kārēz diggers carry their shafts down to depths quite as great, and moreover connect them with perfectly levelled tunnels, is an old inheritance at Turfān.

Streets and alleys cut from rock.

Apart from the main central thoroughfare above referred to there are two or three narrower streets running parallel to it on the east. They and the transverse streets are again connected by a network of small alleys and lanes cut from the rock and curiously resembling the 'galis' of an Indian town or those to be found in the heart of many an Italian city little changed since the Middle Ages. I noticed that in these alleys and also in the main roads the walls facing outwards show but comparatively few openings, a feature common to most Eastern towns from the Mediterranean to the Yellow Sea. I found no structural features indicating the location of a Bāzār. But the great axial thoroughfare is broad enough to have permitted the erection of booths built of mud bricks or with wattle and plaster walls, such as are to be found in most Turkestān towns ready for temporary occupation on the customary weekly market days. Or else local trade may well have been conducted in the suburbs. Considering the small area available on the plateau and the necessity of suburbs as an adjunct to the official capital, they may safely be assumed to have stood on the opposite side of the eastern *ghol* or Yār where now stretch the lands of Yār-khoto village. The town on its isolated plateau could never have served the purposes of trade, as do the present towns of Turfān or Lukchun, since it was inaccessible both to camels and carts.

Vaulted chambers of *Zindān*.

Near the point where the above-mentioned straight reach of the main thoroughfare ends, and the road takes a somewhat winding course, much of the plateau surface retains its original level, as seen in the panoramic view, Fig. 326, having been occupied only here and there by houses. Into a big clay terrace thus left unoccupied by the side of the road a spacious cave has been dug which looks as if it had served some public purpose, perhaps as a market or guard station. Some little distance to the east of this and by the side of a transverse road is a curious group of large chambers formed by vaults of natural clay and opening on two sides of an open court sunk into the ground. The place is known by the name of *Zindān*, 'the prison'. Whether it really served this purpose seems doubtful. As the view taken from this point (Fig. 329) shows, the southern area of the town site, which may be said to commence here, is only partially covered with buildings, mostly standing separate and none of them of any height.

Occupation down to Muhammadan period.

There is a stretch of open ground but no clearly marked road leading towards the gate by which the track winding down the cliff face is gained. Close to this stands a small brick-built dome, which by its 'Mihrāb' or prayer niche turned to the west can clearly be recognized as a mosque. This suggests that the site of Chiao-ho or Yār-khoto was not altogether abandoned by the time that Islām was established in the territory. But since the Ming Annals mention the city of T'u-lu-fan, i. e. Turfān, as the chief place of the territory,[14] it is not likely that Yār-khoto, situated only about

[14] See Bretschneider, *Med. Researches*, ii. p. 189.

four miles to the north-west of it, can have retained any importance in the fourteenth century. Judging by the number of its sanctuaries, Kao-ch'ang, i.e. Kara-khōja, more centrally and conveniently situated, must have greatly surpassed it in wealth and population during Uigur times, and probably even before them. We can scarcely be wrong in assuming that it was Buddhist cult, ever tenacious of its local associations, that lingered longest among the ruins of this strange semi-troglodyte town, the ancient seat of the 'Anterior Court of Chü-shih'.

# CHAPTER XX

## EXPLORATIONS IN THE KURUK-TĀGH

### Section I.—FROM TURFĀN TO SINGER

On February 16th, to my great satisfaction, I was at last free to leave my suburban quarters in the house of the obliging Russian Ak-sakāl of Turfān in order to cross the Kuruk-tāgh into the Lop basin. After my return from Yār-khoto I had been able to settle with the attentive and now almost apologetic district magistrate upon a suitable diplomatic reply to the injunctions received through him from head-quarters. It was calculated to leave my hands free in the matter of excavations elsewhere and to offer no excuse for interference with the convoy of antiquities now on their way to Kāshgar. We parted on terms of mutual consideration.

Departure from Turfān.

My immediate programme was to move straight to Singer, the only permanently inhabited spot in that whole vast desert region of the Kuruk-tāgh, and thence, after picking up a guide in the person of Abdurrahīm's youngest brother, to visit two localities, P'o-ch'êng-tzŭ and Shindī, where the former had told me that remains of old occupation were to be found. With these visits I wished to combine a plane-table survey of ground that had remained outside the explorations carried out by Lāl Singh, both in 1907 and on this expedition. Then a descent past the salt spring of Yārdang-bulak was to bring me to two cemetery sites near the Kuruk-daryā that Lāl Singh had noticed on his march a year before from Tikenlik to Lou-lan, and to a portion of the course of the 'Dry River' that had been left by him unsurveyed on that occasion. Thence the Ying-p'an site, near the point where the Kuruk-daryā bed branches off from the present course of the Konche-daryā, could be gained with a view to eventual excavations.

Plan of Kuruk-tāgh surveys.

My journey to Singer in the central portion of the western Kuruk-tāgh had to be made along the most direct of the three routes that connect it with the Turfān basin. All three had already been followed by Lāl Singh; therefore I naturally chose the shortest, leading due south from Turfān town across the deepest portion of the depression (Map No. 28. c. 3). The first two marches were short; but as they lay across the lowest belt of Kārēz-irrigated oases and then past the western extremity of the terminal salt marsh of the basin, they afforded opportunities for interesting observations on its physical geography. A record of them, however, must be left for the paper previously referred to.[1] I must confine myself here to recording that the ground on either side of the several wide ice sheets in which the river of Toksun was then pushing its terminal course towards the salt marsh known as Aidin-köl, looked, with its bulging cakes of cracked salt crust and patches of soft *shōr*, as if marking a stage in the formation of such a bed of hard salt as extends over the now dried-up area of the ancient Lop Sea. A rapid reconnaissance subsequently made from our camp at Bējān-tura towards the westernmost portion of the marsh showed ground which closely resembled the salt bog crossed by us ten months earlier on the way to the line of the Limes north-east of Tun-huang.[2] Ice brought from the terminal branches of the Toksun river saved us from having to

Deepest portion of Turfān basin.

[1] See above, i. p. 567.

[2] Cf. above, i. p. 362 sq.

make use of the brackish well which is marked by the badly decayed tower of stamped clay and brickwork known as Bējān-tura.[3]

Northernmost range of Kuruk-tāgh.

On February 18th a long march carried us up the glacis, first very gently sloping, then more pronounced, and across the crest of the northernmost hill range of the Kuruk-tāgh which bounds the Turfān basin in this direction (Map No. 28. B, C. 3). An outlier of it, almost completely covered with masses of fine detritus and sand, was crossed by a saddle appropriately known as Kum-dawān at an elevation of approximately 1,000 feet. A second saddle about 400 feet higher, rising beyond a small drainageless basin, gave access to a broad valley which we followed up to its head without meeting any vegetation. Thence a steep and narrow col had to be crossed at a height of about 2,700 feet, and finally a rapid descent in a winding gorge brought us in the darkness to the ice sheet marking the salt spring of Achchik-bulak, after a total march of 28 miles (Map No. 28. B. 4). It was a fitting introduction to the barren Kuruk-tāgh, and the skeletons of sheep left to die here on their journey from the Tārīm to Turfān showed the difficulties presented by this waterless march, even in the winter when ice from the salt spring can be used. During the summer this most direct route is practically impossible.

Crossing of second Kuruk-tāgh range.

Next morning showed that the ice sheet, which with the abundant scrub around had allowed us to halt here in comfort, stretched down into a confined winding cañon between steep spurs furrowed by erosion. This would afford direct access to the Turfān basin from this side were it not that it is so narrow in places farther down as to be impassable for animals. The onward march that day led up a big and utterly bare peneplain, formed by the almost complete decay of a succession of small rocky ridges, and thus on to the crest of a second main range. It was crossed the same day by the saddle known as Āt-ölgan-dawān at an elevation of 4,300 feet. Patches of snow in sheltered spots beyond saved us recourse to the water-holes of Shegil-bulak, which were found dry. This second range of the Kuruk-tāgh, insignificant as it looked on the very gradual ascent from the north, is yet an important feature in the morphology of the western Kuruk-tāgh. As appears from the map (No. 28. A, B. 4), it joins up to the north-west with an outlier of the T'ien-shan which runs down to the south-west of Toksun and is crossed by the Turfān–Kara-shahr route near Ūjme-dong. It forms the water-parting between the Turfān depression to the north and a huge drainageless basin to the south in the centre of the western Kuruk-tāgh. The deepest portion of this basin is occupied by an extensive dried-up salt marsh which, as the map shows, extends for a distance of at least thirty miles from north-west to south-east. In all probability this receives also what occasional drainage there is from the side of the plateaus eastwards, which the route followed by Grum-Grizhmailo and surveyed by Afrāz-gul crosses between Shaldrang-bulak and Bakri-changche.[4]

Routes connecting Lop with Turfān.

It is only along the depression marked by the dried-up salt marsh that vegetation to any appreciable extent as well as water can be found within this large central basin. We reached the depression after a total march of 38 miles from Achchik-bulak, after crossing an outlying spur of the range in a gorge where rock layers with quartz were exposed amidst sandstone and slate. The narrow belt of loess that stretches along the northern shore of the dry salt marsh supports reed-beds and tamarisk scrub, and here lie in a line the springs of Ārpishme, Örkash, and Uzun-bulak, near which the routes from Bējān-tura and Deghar unite. No drinkable water is to be found between

[3] Judging from the sketch-map appended to Klementz, *Expedition nach Turfan*, and compiled mainly from Roborovsky and Kozlov's surveys, it appears that the name *Bojanta* given in this and other Russian maps to the terminal salt marsh owes its origin to a mispronounced (or imperfectly recorded) form of the name *Bējān-tura*, 'the lonely tower', applied to the ruined tower. I did not hear the name in the form *Bojanta* used for the marsh. But this is scarcely a sufficient critical reason for doubting the existence of the latter; see Herrmann, 'Zwei Osttürkische Manuskriptkarten', in Hedin, *Southern Tibet*, viii. p. 413, note 1.

[4] See Map Nos. 28. A, B. 4 and 29. B–D. 1; below, Chap. XX. sec. iv.

either of these points and the springs just named, and this makes the use of both routes very difficult at all seasons except when ice is available at Achchik-bulak and at the similarly named salt springs on the Deghar route (Map No. 28. c. 4). On this account the route now ordinarily followed from the Lop portion of the Tārīm to Turfān passes from Singer north-westwards to Üjme-dong on the Kara-shahr road, and thus reaches the Turfān depression at Toksun.[5] Along this devious route springs of drinkable water are to be found at a number of places (P'o-ch'êng-tzŭ, Kan-so-ho, Shōr-bulak), and this explains its choice as a line of communication by the Chinese administration. After the reconquest of Hsin-chiang, rest-houses, now lying in ruins, were maintained along it for a number of years. For the same reason it also appears probable that even in ancient times the route connecting Lou-lan directly with Kao-ch'ang and leading north of Singer could have served for traffic only to a very limited extent.

When crossing the salt-encrusted bed of the dried-up marsh on our start from Ārpishme-bulak on February 21st, I had occasion to observe features which were of interest by reason of their close resemblance to those noticed a year before on our exploration of the ancient Lou-lan route where it crossed the dried-up Lop sea-bed.[6] At first the route led over soft clayey *shōr*; this farther on changed into a hard crust of salt cakes. Across this troublesome belt, fully a mile wide, traffic, comparatively slight as it is at all times, had worn a winding track, 5 to 6 feet wide in most places. The big cakes of hard salt had been reduced here to a less rugged surface, and hence the track offered better going. Within this belt it was curious to notice narrow salt-coated ridges 10 to 15 feet high, very similar in type to those 'White Dragon mounds' which fringe the bed of the ancient Lop Sea, but on a scale so much larger. Beyond this the crumpled-up salt cakes gave place to a surface of salt-impregnated lumps of clay with characteristic patches of soft clayey *shōr* between, just such as I remembered seeing when we crossed the bay of the dried-up sea north of Kum-kuduk.[7] Along the opposite shore of the marsh there stretched a narrow but far extending belt of live tamarisk-cones and reed-beds. This was fringed again to the south by isolated cones with only withered roots of tamarisks that had died long ago. Crossing of dry salt-encrusted marsh-bed.

There was no trace of living vegetation on the bare gently rising Sai, first of coarse sand, then of gravel, over which the ascent lay to the third range bordering the basin on the south. Near two shallow flood-beds, however, I noticed remains of completely decayed dead tamarisks, suggesting that at an earlier period moisture must have been fairly constant in those beds. After we had ascended to the top of a broad side spur of the range where red sandstone rocks were cropping out from the heavy cover of detritus, there lay before us a wide peneplain streaked with low rocky ledges. A broad Nullah crossing from south to north showed again living tamarisk bushes, and ascending it we passed the salt spring which Lāl Singh had halted at and marked on his plane-table. As it lay among low rocky hillocks to the west of the route, we did not see it.[8] Ascent over bare Sai.

Snow lying in sheltered spots allowed us to halt for the night within five miles of the broad saddle known as Yagach-īle-dawān. Over this saddle the almost imperceptible watershed of the third range was crossed next morning at an elevation of about 4,600 feet. From it a wide and striking view opened across a broad basin to the south, appropriately known as Kizil-sai from the reddish clay and sand at its bottom, and towards the boldly serrated hill range of the Kizil-tāgh, west of Singer. This, as our surveys show, with its continuations west and east, marks the true backbone of the western Kuruk-tāgh (Map No. 29. A, B. 2) and contains its greatest elevations. Central range of Kuruk-tāgh.

[5] See Maps Nos. 29. A. 1; 28. A. 4.

[6] See above, i. pp. 300 sqq.

[7] Cf. above, i. pp. 317 sq. The indication of the salt-encrusted surface in Map No. 29. B. 1, taken from Lāl Singh's plane-table record, ought to have been corrected in accordance with the above observations.

[8] A subsequent statement of Muḥammad Bāqir, the guide secured at Singer, confirmed the name *Parsa-khōja-bulak* as recorded.

To the north of the little plateau which holds the few homesteads and fields of Singer, the range stretching from west to east flattens out into a broad peneplain, with its surface broken by a succession of low rolling ridges and shallow Nullahs between them. The scrub filling the latter and the eroded forms of the ridges both suggested that this central range receives a greater amount of moisture than the rest of the Kuruk-tāgh, and my subsequent observations farther west fully confirmed this conclusion. The morphological importance of this range is well brought out by the fact that though on the peneplain overlooking Singer it rises, as Lāl Singh's triangulation shows, only to heights of about 4,500 feet, yet it forms throughout a well-marked watershed; for while the drainage channels on the northern slopes of the range all ultimately descend into the Ārpishme–Shōr-bulak depression, those to the south either carry their occasional floods right down to the Kuruk-daryā and the Lop basin, or else empty them into the separate drainageless trough south-east of Nanchan-bulak (Map No. 29. B. 2).

Small settlement of Singer.

Owing to the broken ground we were unable to see the small flat-bottomed valley of Singer, about three miles long from east to west, until we were quite close to it. The bold conical hill, however, which rises above its head to the west and from which it probably derives its name, forms a conspicuous landmark for some distance.* A day's halt, on February 23rd, at this tiny oasis, the only permanently inhabited spot in the whole of the Kuruk-tāgh, allowed me to secure an intelligent guide in the person of Muḥammad Bāqir, the youngest of Abdurrahīm's brothers, and to gather useful information about this little settlement isolated in the midst of barren hills and plateaus. Singer owes its occupation by a family, originally settled at Deghar in the Turfān basin, to the presence of a spring (Fig. 334). This issues in a hollow about 400 yards to the west of the small cluster of brick-built houses, or more correctly hovels. It furnishes a permanent supply of fresh water, which at the time of my visit amounted to less than three-quarters of a cubic foot per second. This supply, which may be slightly increased in the early spring, suffices to maintain a little orchard near the homestead and to irrigate an area of cultivation farther east where wheat and oats are grown. The surplus produce is sold to traders and wayfarers. But an economic resource that is probably quite as valuable to the little settlement consists in the meat of wild camels and other game, which can be disposed of at good rates to passing travellers.

Origin of Singer colony.

There can be little doubt that the position of Singer at a point which all direct traffic between Turfān and the Lop tract must pass was the main reason for its occupation, which dates back only to the second quarter of the last century. According to Muḥammad Bāqir, his grandfather, a hunter of wild camels and apparently a man of enterprise, first settled at Singer and started cultivation about seventy years before my visit. The fact that at that time Lop was administratively linked with Turfān and that direct traffic was therefore encouraged may have had something to do with the venture. The original settler died young; but his son, Yūsuf Sālchi, who had come there as a youth of about sixteen and evidently was possessed of energy unusual among Turfān people, developed the settlement and assured its permanence. A great hunter himself, he brought up his four sons to regard the Kuruk-tāgh wastes as their own allodial domain. Incidentally, as a result of their hunting expeditions, he bequeathed to them that thorough local knowledge which has benefited Colonel Kozlov and the few subsequent explorers of this region. But as the resources of Singer were obviously insufficient to maintain four growing families, two of the sons (Abdurrahīm, Dr. Hedin's first guide to Lou-lan and Lāl Singh's cherished helper, and Abdulmalik, at the time Afrāz-gul's companion in the Lop Desert) had found it advisable, since the patriarch's death, to transfer their homes to Tikenlik and Deghar respectively. While the youngest son, Muḥammad

* *Singer*, perhaps a local form of the Persian *sangar*, 'stone heap, breastwork', is found elsewhere in the region of Turfān as the designation of a prominent rocky hill; see Kizil-singer near Pichan, Map No. 31. A. 3.

Bāqir, remained at Singer to look after the family's joint property, Abdurrahmān, the eldest, was endeavouring to enlarge it by opening new cultivation at the head of the Shindī valley. There I subsequently met him, and made use of him to maintain communication with Lāl Singh, who was then triangulating in the Kuruk-tāgh hills to the north-west. Thus for a brief time all four of Yūsuf Sālchi's brave sons were employed in connexion with our surveys.

Climatic conditions of Singer range.

Several observations make it evident that Singer and the central range westwards, which might well be named after this the only permanently inhabited spot along it, receive more moisture than the rest of the Kuruk-tāgh. According to Muḥammad Bāqir, Singer usually receives rain four or five times during the summer and often sees cloudy skies, which accounts for the moderate summer heat there experienced. In consequence of these climatic conditions, the only fruits that ripen there are apricots and Jigda (Eleagnus). The early autumn cold does not permit maize to be cultivated. Summer rain was said to be distinctly more abundant in the high hills to the west, and the tree growth found among them in several valleys, both by Lāl Singh and myself, fully confirms this statement.[10] Yet the rain-water is so rapidly carried off by the deep-cut valleys and absorbed by the detritus of their alluvial fans that owing to the want of water on the surface herds and flocks cannot be maintained on these hills during the summer months. Hence grazing is confined to the winter, when snow is available. Rain clouds at Singer and in western Kuruk-tāgh generally were said to come always from the north-west, i. e. from the side of the T'ien-shan, while the dust-storms of the spring, comparatively rare, proceed from the north-east, evidently a result of the 'aspiration' exercised at that season by the hot air of the Lop region.

W. portion of range affected by moisture from T'ien-shan.

The physical conditions here adumbrated suggest a very marked difference between the portions of the Kuruk-tāgh situated east and west of Singer as regards the amount of moisture they respectively receive. Tree growth is not to be found anywhere farther east than Nanchan-bulak and its neighbourhood, to which the drainage of Singer and of the valleys south of it descends. Yet quite a number of valleys along the southern slopes of the central range stretching west of Singer contain wild poplars and in places also elms (*kara-yagach*).[11] It appears to me that this notable difference in one and the same orographic system may confidently be attributed to the climatic influence exercised by the close proximity, on the north-west, of the main T'ien-shan and by the abundant rain and snow fall of its northern slopes. The direction of the big Kara-shahr valley, which from the snow-girt Yulduz plateaus with their ample verdure descends straight towards the western Kuruk-tāgh, and possibly also the presence of the large fresh-water lake of the Baghrash-köl fed by the drainage of the former, seem to support this explanation. On the other hand, the eastern Kuruk-tāgh cannot receive moisture from the regions adjoining it, as these themselves, the Pei-shan, southernmost Mongolia, and the eastern extension of the Lop basin, have, as we have seen, an extremely arid climate.

*Shan*, i. e. western Kuruk-tāgh, in Chinese records.

The question of the present climatic conditions in the western Kuruk-tāgh is so closely bound up with that of its human occupation during historical times that this seems the appropriate place for discussing the few references to it which I am able to trace in early Chinese records. I have already pointed out in *Serindia* that the notice which Book XCVI of the Former Han Annals devotes to 'the kingdom of *Shan*' 山, undoubtedly relates to the western Kuruk-tāgh.[12] The identification is made quite certain by the bearings and distances of neighbouring territories as indicated in that notice: '*Wei-li* 尉犂 lies 240 *li* to the west; *Yen-ch'i* 焉耆 is 160 *li* to the north-west; and

[10] See the Chong-aghiz and the valleys descending from the Dunda-shan and Mohur-shan in Map No. 29. A. 1, 2; also the valleys west of Shindī, Map No. 25. B–D. 2.

[11] Cf. note 10 above.

[12] See *Serindia*, i. p. 334; iii. pp. 1230 sq. The identification of *Shan* was first correctly made by Grenard, *Mission Dutreuil de Rhins*, ii. p. 61.

*Wei-hsü* 危須 260 *li* to the west. The country joins *Shan-shan* 鄯善 and *Chü-mo* 且末 on the south-east.'[13]

Yen-ch'i is well known as the early Chinese designation of Kara-shahr.[14] I believe that I have definitely established that by Wei-hsü and Wei-li are meant, respectively, the present Korla and the tract which stretches along the Konche-daryā from below Korla towards Tikenlik,[15] and which we shall have occasion to visit farther on.[16] The south-eastern bearing of Shan-shan, i. e. the present Lop, is correct, but less so that of the distant Chü-mo or Charchan, which lies in reality to the south-south-west. The directions in which Kara-shahr, Korla, and the Konche-daryā tract are said to lie agree in clearly placing the territory of *Shan* in the western Kuruk-tāgh. At the same time the distances indicated, which, as in similar statements of the Han Annals, must be assumed to refer to the chief place of the territory, oblige us to look for the locality intended at some point much farther west than Singer.

Produce of *Shan* mentioned.

In this connexion the statement with which the notice on Shan concludes deserves attention. It says: 'The mountains produce iron; and the people, living among the mountains, depend on Yen-ch'i and Wei-hsü for their grain and field produce.' The mention of iron distinctly points to the western Kuruk-tāgh; for other metals, such as lead and copper, are being mined there at the present day in pits worked by small parties both to the north and south of the high portion of the range known as Hsi-ta-shan (Map No. 29. A. 2). Evidence of such mining in former times in the shape of smelting furnaces will be mentioned below.

Grazing in western Kuruk-tāgh.

Special interest, however, attaches to the statement that the population of Shan, which the same notice in the Former Han Annals estimates at 450 families or 5,000 persons, depended on Yen-ch'i and Wei-hsü, i. e. Kara-shahr and Korla, for its food-stuffs. It clearly proves, on the one hand, that then as now the Kuruk-tāgh can have offered only very limited opportunities of cultivation. On the other hand, it leads us to conclude that the people inhabiting Shan must have lived as nomadic graziers, just like the present-day Mongols who come during the winter with their flocks and herds from the side of Kara-shahr and visit the valleys at the north-western extremity of the Kuruk-tāgh. Lāl Singh in 1907 had come upon a number of such Mongol camps between the Sherzak-ghol and Altun-ghol, in the hills to the south-east of the Baghrash-köl (Map No. 25. C, D. 1). It is well known that Mongols had frequented them and the valleys about Hsi-ta-shan in much larger numbers before the troubles of the last Muhammadan rebellion.

References to 'Kingdom of *Shan*'.

It is to that westernmost portion of the Kuruk-tāgh, towards the Baghrash-köl and Korla, which I regret not to have been able to visit in person, that I believe we must look for the location of the chief place in the Shan of Han times. Though the territory can never have been of much consequence, *Shan-kuo* 山國 'the kingdom of Shan' is also mentioned in the Later Han Annals as having been punished by Pan Ch'ao A. D. 94, along with Yen-ch'i, Wei-hsü, and Wei-li.[17] The *Wei lio*, too, names Shan as dependent on Yen-ch'i or Kara-shahr,[18] while Li Tao-yüan's commentary on the *Shui ching*, composed before A. D. 527, refers to the same territory under the name of *Mo-shan* 墨山 ('the Black Hills').[19] In this passage the 'town of Mo-shan' is mentioned as the capital of the 'kingdom' and Wei-li as situated 240 *li* to the west of it. The waters of the Northern River, i. e. the Tārīm, are described as passing to the south of Mo-shan before reaching the town of *Chu-pin* 注賓. If we compare this statement with the relative positions, as shown by Map No. 25, of the Tārīm and of the site of Ying-p'an, where the 'town of Chu-pin' must

[13] See Wylie, *J. Anthrop. Inst.*, xi. p. 105.

[14] Cf. Chavannes, *T'oung-pao*, 1907, p. 208; *Serindia*, iii. pp. 1178, 1180.

[15] Cf. *Serindia*, iii. pp. 1230 sq.

[16] See below, Chap. XXI. sec. iv; Chap. XXII. sec. i.

[17] Cf. Chavannes, *T'oung-pao*, 1907, pp. 208 sq.

[18] See Chavannes, *ibid.*, 1905, p. 552.

[19] Cf. Chavannes, *ibid.*, 1905, p. 570; *Serindia*, i. p. 420.

be located,[20] the conclusion imposes itself that in Li Tao-yüan's *Mo-shan* we have again a reference to the westernmost Kuruk-tāgh.

## Section II.—TO P'O-CH'ÊNG-TZŬ AND SHINDI

March to P'o-ch'êng-tzŭ.

On February 24th I left Singer for P'o-ch'êng-tzŭ, once a station on the route towards Toksun, the very name of which suggested the presence of ancient remains, of which I had also heard reports. Almost the whole of the day's march of about 27 miles led over the gravel glacis of the main range stretching west of Singer. But this fact exhibited all the more clearly the change in vegetation due to the moister climatic conditions in the hills to the south. Though our track gradually drew away from the boldly serrated range to the south known as Kizil-tāgh, scrub and tamarisk brushwood were to be found on almost every part of this Sai. Scattered groups of wild poplars were also met with until we crossed the deep-cut bed of a small stream coming from Tatlik-bulak, 'the fresh spring' (Map No. 29. A. 1). From the higher level over which our route led it was easy to see that this belt of ampler vegetation extended right across to the foot of the long flat-topped hill chain on the north, which Muḥammad Bāqir knew as the Khawurga-tāgh. A gap in it to the north-west marked the point where the drainage from the main range breaks through it near the spring of Tunguzluk. After about 19 miles had been covered we passed a big isolated elm (*kara-yagach*) rising as a conspicuous route-mark. Seven miles farther on we struck the bed of a small ice-covered stream stretching down amidst luxuriant tamarisk jungle from the high massif of the Hsi-ta-shan, which was dimly visible to the south. Here we found the ruin of the Chinese station of P'o-ch'êng-tzŭ, abandoned years ago and now temporarily tenanted by a Turfānlik who with his three sons was working a lead pit among the foot-hills of the Hsi-ta-shan.

Remains of ruined fort.

That the place had served in former times also for smelting operations was proved by a number of slag heaps and roughly constructed furnaces which we passed next morning when proceeding along the western edge of neglected fields to the ruins reported. They occupy the top of a small rocky ridge rising about 50 feet above the left bank of the stream and about half a mile to the north of the abandoned station. The remains are those of a small fort enclosing in the shape of an irregular polygon an area about 80 yards from east to west and half as much across. The walls, built of roughly cut slabs of clay (*kisek*), are about 3 feet thick and best preserved to the west and south-west, while to the east they have completely disappeared. There are remains of roughly built square towers at several of the corners and also near a gap in the northern face which seems to mark the position of a gate. Near the eastern edge of the little plateau pieces of lead ore and smelting refuse showed that the place had been occupied at a time when the lead mine in the hills to the south was being worked. No relics furnishing chronological evidence could be found; but the general appearance of the ruined circumvallation suggested considerable age.

Stream of P'o-ch'êng-tzŭ.

Though the stream of P'o-ch'êng-tzŭ, except at the time of rain floods, does not flow more than two or three miles farther, yet the wide bed it has cut could be made out clearly from the plateau as far as the previously mentioned gap near Tonguzluk. To the south the ravine (*akin*) in which the stream rises was seen to descend from the mouth of a well-marked valley, the *Chong-aghiz*, on the flank of the Hsi-ta-shan massif, and to be bordered by a broad belt of vegetation. A number of springs rising in this belt feed the stream, which below the ruined station carried at the time of my visit fully 2¼ cubic feet of water per second. This would permit of the cultivation of a considerably larger area than is irrigated at Singer. Yet the badly neglected fields of P'o-ch'êng-tzŭ, watered by a separate spring well above the level of the stream, cover only about three acres.

[20] See below, Chap. xxi, sec. ii.

Muhammad Bāqir explained that his father had started cultivation here before the Muhammadan rebellion, but had been obliged to abandon the work owing to the depredations of roving Tungan bands from the Kara-shahr side. They also wrought havoc among the Mongols, many of whom were then still grazing their flocks in the hills to the west and south-west. He had never heard complaints from his father, who had lived to well over eighty, of any diminution of the water-supply or of its salinity; but he was aware of the difficulty of coping with floods on such ground as could be cultivated lower down the stream. The chief difficulty, however, was obviously want of labour.

Tree-growth in valley from Hsi-ta-shan.

On February 26th an interesting march on our way towards Shindi brought me to ground of a strikingly different character. An ascent of about six miles, at first very gentle, led up an alluvial fan abundantly covered with scrub and reeds. Near its head big elm trees, such as were to be seen here and there lower down also along the shallow branching flood-beds, were gathered in large groves. Then rather suddenly we found ourselves entering the valley, flanked by steeply eroded hills from the point where it debouches, in which the whole northward drainage of the Hsi-ta-shan is conveyed. The valley bottom, from about 60 to 80 yards wide and winding between bare rocky spurs, looked as if it were completely washed at times by floods from the melting snow on the high portions of the range and from occasional heavy rain. But by its sides fine elms had found room to grow up, many of them manifestly of great age. One, a large but by no means exceptional specimen, showed a girth of over twelve feet at a height of three feet from the ground. Wherever there were spaces at the bends left untouched by the floods, they were covered by a plentiful growth of scrub and coarse grasses; farther up the Nullah I found similar vegetation, though much thinner, ascending also the foot of the precipitous rock slopes. Considering the general character of this region it looked like a herdsman's paradise, but no trace of his presence was met until some eleven miles from P'o-ch'êng-tzŭ. The lead smelters, however, were evidently alive to the usefulness of the wood, and for some miles up the Nullah traces of a cart track showed where dry fuel had been gathered by them. On an eminence close to the mouth of the valley I noticed a smelting furnace, and a point about two miles up, where the route followed by Lāl Singh in 1907 to the Āltun-ghol turned into a small side valley westwards, was known to Muhammad Bāqir as 'Sanzulo'. This manifestly Chinese designation meant according to him 'Three Ovens', and if so may be derived from other smelting-places near by and, perhaps, correctly spelt *San-tsao-lu*.[1]

Peaks of Hsi-ta-shan.

Light snow lay in patches over the valley bottom. So it did not matter to us that above the springs of Chong- and Kichik-tatlik-bulak, known also by the Mongol name of *Burgastu*, no water was found in the several wells and 'Kāks' passed. But vegetation continued at the bottom of the gradually contracting valley, which all along bears the appropriate designation of *Chong-aghiz*, 'the big ravine'. The rock exposed on its sides seemed to be composed throughout of crystalline slate, striking from east to west with a dip of about 80° to the south. After about fourteen miles of march a point was reached where what seemed the main valley turns to the south-east, and here an impressive view opened towards the wildly serrated central summits of the Hsi-ta-shan. Their extremely precipitous rock faces appeared to rise fully three thousand feet above the fairly open head of the valley, which stretches up to their foot. These rock walls and the sharp pinnacles above them presented a very striking contrast to the much-eroded outer range through which the Chong-aghiz has cut its way, and recalled the fantastic appearance of the Kāka-jāde peaks rising in the Kara-teke range south-west of Uch-Turfān.[2] As our route led off to the south-west past the frowning cliffs of a buttress of the main Hsi-ta-shan massif, its highest summits were not sighted again with sufficient clearness for definite identification. Hence no exact clinometrical readings could be secured. But according to the rough estimate made by me at the time, those summits

[1] The conjectural spelling *San-hsi-lo* in Map No. 29. A. 1 ought to have been corrected.

[2] Cf. *Serindia*, iii. p. 1302.

reached a height of well over 10,000 feet. They are screened from the south by the peaks of Khangol and Mohur-shan (the latter 8,412 feet by triangulation), and this helps to explain why Lāl Singh's triangulation did not reach them. I have, however, little doubt that future exploration will prove them to be the highest, not only in the central range, but in the whole of the Kuruk-tāgh region. This belief is supported by the Chinese name which I heard from Muḥammad Bāqir's mouth as *Hsi-ta-shan*, 'the western big mountain', but which might well be *Hsüeh-ta-shan*, 'the snowy big mountain'; [3] for the snow I noticed lying in the higher gullies of the northern face would probably remain there for months longer.

Grazing at Khangol-yailak.

A mile or so beyond the point mentioned we emerged upon the edge of a wide peneplain gently rising towards the south-west. As we moved up it along the flood-bed draining into the Chong-aghiz, it was seen to be flanked on the east by a high spur of the Hsi-ta-shan and on the south-west by the lesser massif of Sherzak. The former is known as Khangol and has given its name to the grazing ground called Khangol-yailak, formerly much frequented by Mongols. There we pitched camp at an elevation of about 5,100 feet. According to what Muḥammad Bāqir remembered to have heard from his father, some forty Mongol families used to graze their herds and flocks here and elsewhere around Hsi-ta-shan all through the year, before the troubles of the Muhammadan rebellion induced them to seek safer ground in the T'ien-shan. Now rarely more than two or three Mongol 'tents' visit this neighbourhood or the adjoining Sherzak-yailak, though coarse grass as well as groves of elms were plentiful where we camped, and water was probably obtainable at no great depth in the flood-bed. It was clearly not desiccation that was responsible for the abandonment of this grazing ground.

Watershed towards Baghrash Lake.

After a cold night with a biting north wind and a minimum temperature of 24 degrees F. below freezing-point, we moved next morning up the gradually narrowing peneplain to the south-west to gain the pass by which camels could be taken to the head-waters of the Shindī river. We reached it after a march of about six miles, having crossed on the way two low but steep rocky ridges running parallel to the bold heights of Khangol, and offering a full view over the almost imperceptible watershed towards the head of the Sherzak valley. The Sherzak-ghol drains towards the Baghrash Lake to the north-west (Map No. 25. D. 1, 2), while the Bēsh-kara-choka-dawān, by which we next crossed a narrow saddle of the Khangol spur, gives access to the head-waters of the Shindī river draining to the head of the Kuruk-daryā bed and thus into the Lop basin. Thus this end of the Chong-aghiz valley on the western flank of Hsi-ta-shan marks an important orographical point where three main divides of the Kuruk-tāgh meet.

Pass of Bēsh-kara-choka.

The aneroid indicated for the pass an elevation of about 5,800 feet, and by climbing over a bad shale slope to the steep crest overlooking it from the north we obtained a distant view over the Kharzak valley to the south and towards another rugged spur, known as Khangol-choka, descending from Hsi-ta-shan south-eastwards (Fig. 338). Disintegration and erosion appeared to have advanced much farther on this side of the range than on the northern, while the growth of vegetation in the valleys proved markedly poorer as we descended to the south-east. The winding stony bed which had to be followed was difficult in places, and at a point about two miles below the pass became so narrow that the camels could barely be passed through. Beyond, the valley widened and the cañon cut by the now dry Kharzak stream could be avoided by keeping to an open stony

[3] Here I may conveniently note that the use of Chinese designations for a number of conspicuous peaks to the west of Singer, such as 'Mohur-shan', 'Hsi-ta-shan', 'Dunda-shan', 'Jobi-shan' (clin. height 6,380, Map No. 29. A. 2), is ascribed by Singer tradition to Chinese surveyors who visited at one time this part of the Kuruk-tāgh in order to determine the best route from Turfān to Lop.

The presence farther west of Mongol local names (see Map No. 25. C, D. 1) is, of course, due to the grazing carried on there by Mongol camps, which were once far more numerous; see above, p. 726.

plateau above it. It was not until we had left the pass some six miles behind us that the first scanty grazing was reached near the shepherd station known as Kavūta-bāshi-ōghil, at the mouth of a valley descending straight from Hsi-ta-shan. Here the valley of Kavūta, from which it takes its name, makes a sharp turn to the south-west and widens greatly. Across its open bottom an impressive view opened towards a jumble of rugged peaks to the west, all rising in island-like isolation above broad detritus slopes. Their fantastic shapes and needle-like pinnacles bore witness to excessive water erosion, whereas in the valley that we were following water was now nowhere to be looked for. Towards the end of the day's march the valley bottom contracted to a defile hemmed in by high and very precipitous rock walls. Apparently the drainage from the Hsi-ta-shan had here cut through a somewhat lower chain, culminating farther east in the peaks of Mohur-shan and Dunda-shan.

Valley and stream of Shindī.

Next morning with an icy wind blowing from the west, a very unusual direction in these parts, we continued to descend the valley and found that after a couple of miles it debouched on a wide gravel Sai. This alluvial fan, covered with a good deal of scrub, was seen lower down to unite with one equally wide descending from the north-east. Here we met the well-marked track leading from Singer to Shindī. The drainage that we were following had cut a broad gap through a low chain striking east to west; through this we passed and sighted the tiny oasis of Shindī about three miles lower down, with the broad mass of the Shindī-tāgh rising behind it to the south. As appears from the map (No. 25. D. 2), Shindī lies at the point where the flood-bed from the Kavūta valley unites with another draining a series of valleys to the north-west in the direction of Lāl Singh's Elisen-dawān. The latter bed contains a small and lively stream fed by several springs rising between two and three miles above the point of junction. The stream receives some additional water from a spring rising in a luxuriant grove of wild poplars to the north-east of that point, and then enters a narrow defile to the south through which it makes its way towards the Ying-p'an site. The volume of water, as measured by me two miles below the junction of the two flood-beds, amounted to over 14 cubic feet per second.

New cultivation at Shindī.

The means for irrigation that this offered appeared to have been used at one time by Mongols in the intermittent fashion which is customary with those nomads. They were said to have called the place *Khulastu*.[4] But such fields as they had laid out had been long ago overrun again by the scrub and tree-growth of the jungle. It was only four years before my visit that Abdurrahmān, the eldest of the Singer brothers, whom we met here, had begun to reclaim irrigable land close to the junction. The area actually under cultivation was estimated by him at about twenty Chinese acres (*mu*), while the extent of available land within and above the gorge of Shindī was at least eight times as much, the water-supply being amply sufficient for it. Abdurrahmān accounted for the slow progress of his reclamation by the inadequacy of labour, the few men from Tikenlik whose help as *métayers* he had been able to secure being shifty folk. He himself as a hunter did not much relish settled life at a spot so isolated as Shindī, and it was only a year before that he had brought his family to it and built there a homestead, partly of rush walls after the Loplik manner.

Remains of old tower.

I lost no time after my arrival in visiting, under his guidance, the remains of which I had previously heard. They were found to consist in the first place of the scanty ruins of two small structures; these had once occupied the crest of a steep hillock which rises close to the east of the junction of the flood-beds to a height of about 120 feet above the stream. It is about 80 yards long at its foot. A small knoll at the southern end of the crest shows traces of having once been occupied

[4] This was interpreted to me by Abdurrahmān to mean 'gorge'. Similarly the name Shindī was assumed by him to represent the Chinese *Shên-ti*, literally 'deep [lying] land', a designation which would be appropriate enough for the fields situated in the gorge.

by a tower, probably built of clay. The opposite slightly lower end bears a platform, measuring about 24 by 10 feet, built of alternate layers of stamped clay and brushwood about 6 or 8 inches thick, with a thin stratum of reeds above the latter. This recalled the method of construction of which I had seen examples among the ruins of Lou-lan, in towers and foundations of Stūpas, and in circumvallations. The whole wore a distinctly ancient appearance, suggesting the remains of a watch-station or of a rallying-place for a small settlement.[5]

Rock carvings, old and new.

In order to visit an inscribed rock of which I had heard reports, I then proceeded down the defile. For a mile or so we passed fields on the right bank of the stream which had been roughly prepared for cultivation. For another mile we met patches of ground on both banks which were clearly cultivable but were overrun by luxuriant scrub; elms, willows, and wild poplars grew in profusion among it. Lower down, the defile became very confined, between precipitous spurs of rock jutting out from either side, but still afforded good grazing at different points. At one of these, known as *Inkur-otak*, an almost vertical cliff, several hundreds of feet high, rises immediately above the left bank of the stream. Its foot for a distance of about 20 yards is covered with a miscellaneous assortment of shallow rock sgraffiti, roughly executed, representing horses, camels, ibex, deer, and in a few places figures of men. Interspersed with these are Cakras, tridents, Svastikas, an eight-petalled lotus, and some figures apparently meant for mystical diagrams. It was getting too dark for an attempt to secure a photograph; but I could see that the sgraffiti high up looked much weathered and old, and those lower down more recent. That local worship of some kind attaches to the spot was shown by a flag which a Mongol visitor had set up near it. The gorges furrowing the Shindī-tāgh on either side looked extremely rugged and confined, and reminded me of forbidding ravines in Hunza or Chitrāl. The defile cut by the Shindī stream was said lower down to become impracticable for camels. The precipitous scarps of all these gorges and the absence of detritus bear striking evidence to the power which water erosion has asserted in this outermost range also of the western Kuruk-tāgh.

March to Azghan-bulak.

After arranging for the dispatch of fresh instructions to Lāl Singh, who was continuing his triangulation under difficulties amongst the much broken ranges to the north-west, I left Shindī on the following morning, March 1st, in order to gain the course of the Kuruk-daryā half-way between the sites of Lou-lan and Ying-p'an. In order to secure water while on the way to this destination I was obliged to proceed first to the route connecting Singer with Ying-p'an, and after striking it at Azghan-bulak to follow it down to Toghrak-bulak. The march to the first-named place was long and monotonous, but served to bring out well the typical character of all these latitudinal valleys or rather peneplains of the central Kuruk-tāgh. It led all the way along the northern foot of the hill chain that stretches from above Shindī eastwards, the relative height of its flat-topped ridges gradually sinking as it approaches the Ala-tāgh near Azghan-bulak. The ground, at first covered with fine alluvium supporting scrub and a few elms by the side of dry flood beds, changed into a stony Sai as the almost imperceptible watershed towards the drainage area of Nanchan-bulak drew nearer. Some miles before this was reached there cropped up along the axis of the wide valley on our left a series of low broken ridges, which continued with interruptions all the way to Azghan-bulak. They clearly represent the last remnants of a completely decayed range parallel to and intermediate between that of the Ala-tāgh on the south and the Mohur-shan on the north. A conspicuous peak in the latter rising to over 8,400 feet showed through the dust haze raised by the persistent west wind, and relieved the monotony of the desert landscape. No spring or well is to be found on this ground before reaching Azghan-bulak; but tamarisk growth and some elms appeared farther east where dry Nullahs coming from the Mohur-

[5] The Stūpa symbol shown in the map is a draughtsman's error in place of the symbol for a watch-tower.

shan range cut through the intermediate line of broken ridges. The small rocky knoll, marking the position of Azghan-bulak and lying in the same line, was reached in the dark after a march of close on 27 miles, and near it we came upon ice formed by a little spring rising in a narrow drainage bed. There we camped and next morning found the ruined roadside station only a quarter of a mile to the east by the side of a tiny stream. This is fed by a larger spring, but is also soon lost in a patch of salt-encrusted scrubby ground. The approximate elevation indicated by the aneroid was 4,400 feet.

Descent to Toghrak-bulak.

Our next march followed the 'road' that the Chinese administration, for some seven years after the reconquest, had maintained and equipped with postal stations, between Turfān and the district head-quarters of Lop, then placed at Dōral by the Tārīm. We first passed the western flank of the Ala-tāgh, low but boldly shaped hills apparently of red sandstone, which accounts for their name. We then crossed a wide peneplain drained by a number of broad shallow flood-beds towards the depression of Nanchan-bulak (Map No. 29. A, B. 2). Here, too, low broken ridges were observed emerging in line from the vast bed of detritus. As it approached the conspicuous peak which marks the south-eastern end of the Shindī-tāgh,* the route led steeply to the top of a rocky ridge which from a natural reservoir of water near by, dry at the time, is known as *Kak-su-dawān*. The plateau here gained is covered with a maze of small hillocks, composed of very hard rock with veins of quartz, and as the track winds in a boulder-strewn Nullah between them I noticed traces of a cart road by which a Chinese military officer at the time of the last Tungan rising had tried to improve communication towards Lop and Charkhlik. This plateau evidently forms part of a much-decayed range striking towards the south-east, of which the continuation is marked by the triangulated heights of Kök-tāgh and Yārdang-bulak-tāgh. It forms the southern rim of the Nanchan-bulak depression and the local watershed towards the Lop basin, all beds met beyond the Kak-su-dawān draining into the Kuruk-daryā. Thence a dreary march of close on ten miles across a bare stony Sai brought us to where flood-beds descending from the eastern end of the Shindī-tāgh contract between rocky ledges. Springs rising here form a small stream (Fig. 339), which under the protection of a covering ice sheet extended at the time over a distance of about half a mile, passing the ruined station of Toghrak-bulak. There we halted. A few wild poplars rising amidst an adjoining patch of reed-beds account for its name. The aneroid indicated here an approximate height of 3,600 feet.

March past *Jigda-bulak*.

On March 3rd we turned off to the south-east in the direction of the Yārdang-bulak spring. The march was long but offered little of interest, lying most of the way along the wide stony glacis that descends from the Kök-tāgh chain of hills. After crossing for about four miles ground intersected by low decomposed ridges we came suddenly in a hollow upon abundant reed-beds, thriving by the moisture that a spring of fresh water, known as *Jigda-bulak*, supplies. The lower and larger stretch of this excellent grazing was found to extend over an area of about a mile in length and a quarter of a mile in width. From here the low line of the Charchak hills overlooking the Kuruk-daryā (Map No. 29. A. 3) was first sighted. The rest of the march led over a stony Sai. For about three miles beyond Jigda-bulak it showed here and there scanty scrub of the kind known as *Chikanda*, which alone seems capable of finding nourishment on the driest ground, as previously noticed, for instance, near Āltmish-bulak. Wind action, of a kind with which the tamarisk-cones of the deserts in the Tārīm basin and beyond had made me familiar, was here illustrated by regular cones of sand which had formed round each of these Chikanda bushes and rose to heights from

* It is marked in Map No. 29. A. 2 with the triangulated height of 5,810. To this 287 feet have to be added, as in the case of all intersected points in the Kuruk-tāgh section, in accordance with the correction explained by Major K. Mason in his Appendix to my *Memoir on Maps*, p. 112.



334. SPRING OF SINGER, COVERED BY ICE-SHEET.
Kizil-tāgh in background.



335. MAZE OF SHORT YĀRDANGS NEAR KURUK-DARYĀ, SOUTH OF YĀRDANG-BULAK.



336. BURIAL GROUND, L.S., ON KURUK-DARYĀ.
Rows of eroded small posts mark position of graves.



337. TAMARISK-CONES AND DEAD JUNGLE ON KURUK-DARYĀ BED, SOUTH OF YĀRDANG-BULAK.



338. VIEW TO SOUTH FROM ABOVE BĒSH-KARA-CHOKA PASS, KURUK-TĀGH.



339. ICE-SHEET COVERING STREAM NEAR TOGHRAK-BULAK, KURUK-TĀGH.

2 to 4 feet. These, together with the dust haze which accompanied us since leaving Shindi, made it abundantly clear that erosion by the wind had its share, though a minor one, besides decomposition and erosion by water in the creation of the surface forms of this dreary Kuruk-tāgh region. Farther on the stony Sai became absolutely barren, except where the Chikanda shrub could be seen in the wide shallow beds that we had to cross in succession. They all joined a big depression skirting the foot of the Charchak hills and draining towards Yārdang-bulak. In one of the flood-beds dusk obliged us to halt for the night.

Track of wild camels.

Until we approached close up to this point we had been able to follow the trail, still fresh looking, of a small party of hunters from Tikenlik whom Muḥammad Bāqir knew of as having shot a wild camel, apparently towards the end of December, near the south-eastern extremity of the Charchak-tāgh. Before reaching our camping-place we noticed a wild camel's track running for some distance close along this trail and evidently quite recent. This led to our guide offering an observation which was not without a certain antiquarian interest. On his own hunting expeditions, he said, he had noticed in those parts of the Kuruk-tāgh which wild camels visit that the animals are often in the habit of keeping close to the hunters' trails leading from one salt spring to another. Needless to say that the wild camels, with their extraordinary sense of locality and keen scent, do not adopt this habit from any need of such human guidance. Whatever the explanation of it might be, and Muḥammad Bāqir was not able to offer any, he was positive in asserting from his personal experience that the wild camel was not afraid of human trails if these are more than a few days old. This information was of interest as supporting what had suggested itself to me, when following the line of the ancient Lou-lan route along the shore of the ancient Lop Sea north-west of Kum-kuduk, as regards the significance of the much-trodden track of wild camels that keeps to it.[7] It may be also recorded here that according to the information received by Muhammad Bāqir from his father wild camels were in the latter's youth frequently to be found as far west as the Kavūta valley, while now the vicinity of Charchak-tāgh and Yārdang-bulak is the western limit of their haunts in the Kuruk-tāgh.

Arrival at *Yārdang-bulak.*

On the morning of March 4th we had marched only about six miles over ground as utterly barren as before, and crossed a low decayed ridge between two wide flood-beds, when almost suddenly we dropped down into a well-defined hollow sheltering the reed-beds which the salt spring of *Yārdang-bulak*, or *Dolān-achchik* as it is also known to the Singer people, provides with moisture. They extend for about 500 yards from north to south with a width of about 150 yards across the middle. The salt spring rises about 300 yards from their northern end, and the ice sheet it had formed stopped just where we camped close to the lower end. I knew from Muḥammad Bāqir's statement and the account of Dr. Hedin who had visited Yārdang-bulak on his first journey to Lou-lan in 1900, that grazing was better here than at Yaka-yārdang-bulak, the other salt spring near to the Kuruk-daryā bed. So I decided to allow here the day of halt of which our camels and men were in need, before starting for the exploration of the cemetery sites that Lāl Singh had discovered on his march along the Kuruk-daryā in February, 1914.

Halt at *Yārdang-bulak.*

There was plenty of work to keep us all busy while the camels and ponies were enjoying their grazing, coarse as it was: the men had repairs of all sorts to do, and I myself much writing and map inking. There were anxious thoughts, too, to keep my mind occupied. Apart from the persistent dust haze which I knew must be seriously impending Lāl Singh's triangulation in the hills of the western Kuruk-tāgh, I was in suspense also with regard to Afrāz-gul. If he had been able safely to overcome the difficulties and risks attending his survey along the western shore of the Lop sea-bed and across the sands of the Lop Desert, he ought about this time to be passing Yārdang-bulak

[7] See above, i. pp. 316 sq.

on his way to join me. I arranged through Muḥammad Bāqir, who was eager to try his luck as a hunter while we halted, to leave directions for the young surveyor under a cairn at the spring of Yaka-yārdang-bulak. But it was uncertain when he would be there and whether he would find the instructions.

## Section III.—TO ANCIENT GRAVEYARDS BY THE KURUK-DARYA

Start for Kuruk-daryā.

On the morning of March 6th we set out for the Kuruk-daryā, after a night during which a strong wind from the north-east had allowed us little rest or comfort. In order not to load our camels too heavily, we left behind all baggage that could be spared and took a restricted store of ice, expecting to be able to supplement it from the ice sheet to be found at Yaka-yārdang-bulak. Our way for the first two miles led down the stony bed extending south from Yārdang-bulak. Then I struck to the south-south-east, where Dr. Hedin's map showed Yaka-yārdang-bulak to be situated; with this guidance and that of a tracing of Lāl Singh's survey, I hoped to have no difficulty in finding the spring, even without the help of Muḥammad Bāqir, who had failed to rejoin us. We were proceeding over absolutely bare gravel Sai when a violent Burān sprang up from the south-east and with the dust haze carried before it effaced all the distant view. After we had covered about six miles from camp under these dismal conditions, the bearing followed brought us down over steeply eroded clay banks into a bay-like depression studded with Mesas.[1] Those close to which we passed all rose to a height of 30 to 35 feet, and at once carried me back to well-remembered sights around the ancient Lop Sea. Having skirted this strange Mesa-filled area, which was found by subsequent survey to extend about four miles farther to the east, we reached a wide network of shallow beds clearly representing the main drainage channel into which are gathered all the flood-beds we had passed since leaving Jigda-bulak.

*Halt at Yaka-yārdang-bulak.*

Here we came upon living tamarisk-cones and also, before long, the first patch of reeds. Following the shallow flood channels to the south-east, over ground which the blinding dust raised by the icy gale made still more deceptive, we arrived, about three miles beyond the Mesas, at a belt of open salt-encrusted ground. As Lāl Singh's plane-table suggested that he had camped near the north-eastern edge of this, I now steered to the east and halted on reaching some luxuriant beds of reeds after a total march of twelve miles. Recognizing this as approximately the place where Lāl Singh's camp had stood, I halted the baggage and set out with Shamsuddin to search for the more northerly of the two springs which the plane-table indicated. But this attempt was frustrated by the unlucky combination of the 'low visibility' resulting from the Burān and the absence of Muḥammad Bāqir; returning that morning to Yārdang-bulak from the place where he had shot the wild camel, he had failed to meet us when we crossed the Sai. We found indeed to the north-west a narrow channel, coming from a little Nullah marked by steep clay cliffs, in which the *shōr*-covered soil felt moist. We walked up it for about a mile and on digging there came upon water at a depth of only one foot. But it was utterly salt and undrinkable even for the camels.[2] We then looked for the spring marked to the eastwards, amidst the low salt-encrusted hillocks, like miniature 'White Dragon mounds', which there skirt the foot of the gravel glacis; but our

[1] The well-defined edge of this Mesa-filled depression ought to have been clearly marked in Map No. 29. A. 3 to the north of the entry 'Mesas up to 30''.

In the same portion of the map the spring symbol close to Lāl Singh's Camp 76 should be deleted, as wrongly placed through a draughtsman's error.

[2] It is this point to which the spring symbol shown in the map about two and a half miles to the north-west of our camp refers. According to Muḥammad Bāqir's subsequent information the above-mentioned channel receives its moisture from a spring which is to be found farther up in that Nullah between Mesas, but forms only a very small ice sheet. It is probable that this little Nullah connects with the valley containing the spring of Kara-aghzi or Kara-yārdang-bulak; this lies much farther away among the foot-hills to the north, and its approximate position has been marked on the map.

search proved equally fruitless. So in order to make sure of the quantity of ice required for longer work on the Kuruk-daryā, it became necessary to camp for a day where we had halted, and to send camels back to Yārdang-bulak to fetch the additional supply.

At the end of that day's halt Muḥammad Bāqir rejoined us with the ice-carrying camels, and his experienced guidance next morning brought us, after a three miles' march east-north-east across ground encrusted with light *shōr*, to where a flood-bed debouches from the belt of Mesas. There we found the eastern spring we had vainly looked for, with a sheet of ice only 20 yards long formed by it in a narrow channel. The absence of adequate vegetation near it explained why Abdurrahīm, when guiding Lāl Singh, had camped so far away from it. From here I let Muḥammad Bāqir return to Yārdang-bulak to look after the ponies and baggage that we had left behind there. The rest of us steered to the south-east, along the foot of the steep clay cliffs which mark where the glacis of the outermost Kuruk-tāgh hill chain falls off to the riverine plain towards Lou-lan. Lāl Singh's plane-table tracing clearly indicated that by keeping below the edge of this glacis we were bound to strike the bed of the 'Dry River' where it makes a big bend to the northward, and farther on to reach in succession the first two burial-grounds he had noticed (Map No. 29. B. 3). Along glacis of Kuruk-tāgh.

The route thus followed led over a strip of gravel or stony Sai, less than a mile wide where we started and farther on growing still narrower. This afforded easy going and allowed an open view, so far as the haze now lifting would permit, over the dead riverine belt to the south. On our left the edge of the glacis, which seen from a distance had looked like a continuous line of cliffs from 100 to 150 feet high, was found to consist for the most part of a close succession of separate but uniformly aligned Mesas. Erosion by water, cutting through the edge of the clay deposits which form the glacis of the hill chain, had evidently been the principal agent in their formation. This glacis edge, as far as I had occasion to follow it along the Kuruk-daryā, bore everywhere a curious resemblance to an ancient coast-line. It thus vividly reminded me of the one I had seen to the north of the bay of the salt-encrusted Lop sea-bed, stretching from below Kum-kuduk towards Bēsh-toghrak.[3] On our right the living tamarisk-cones, which had stretched down in a fairly wide belt from where our camp of Yaka-yārdang-bulak had stood, gave way, at a distance of about three miles from the spring, to a zone of dead cones.

Shortly after this, low narrow Yārdang ridges appeared between the cones, furrowing the bare clay in the manner I had so frequently observed all over the Lou-lan area, right up to the foreshore-like strip of gravel we were following. But the bearing of the Yārdangs was here nearly from north to south or else NNE. to SSW., and I found the same direction in other places also along this portion of the course of the Kuruk-daryā. This distinct difference from the ENE. to WSW. bearing of the Yārdangs in the Lou-lan area previously explored by me suggests that along this portion of the dried-up riverine belt the force of the winds sweeping down into the Lop Desert basin from the immediately adjoining ranges and plateaus of the Kuruk-tāgh is the prevailing factor in the process of wind-erosion, while farther to the east the winds drawn into the basin by 'aspiration' from the side of the Pei-shan and the An-hsi–Tun-huang gap are the stronger agents of this process. Wind-erosion had obviously helped here in sculpturing the Mesas of what might be called the 'coast-line'. Direction of Yārdang ridges.

After a total march of eleven miles we struck the bed of the 'Dry River' where it forms a great northerly bend approaching quite close to the gravel 'foreshore'. The bed was over 150 yards wide and lined, like all the Kuruk-daryā branches in the Lou-lan area, by rows of dead Toghraks, many here still upright. As far as the eye ranged in the hazy atmosphere, it beheld Bed of 'Dry River'.

[3] See above, i. pp. 314 sqq.

a true wind-eroded desert, with the hard clay of the ground cut up into low Yārdangs and their uniformity broken only in places by high cones with dead tamarisks. Beyond this bend of the river-bed we crossed what looked like a bay in the 'coast-line', with one or two flood-beds descending into it from the north, and then came upon Lāl Singh's trail of the year before, still distinct, leading to what his plane-table marked as 'Cemetery No. 1'. It was too late to start examination of it. So we followed Lāl Singh's trail down to lower ground. There we struck a well-marked drainage bed coming from the south and pitched our Camp ccliii where some thorny scrub, known as *kamghak*,[4] offered scanty but welcome food for the camels. The Yārdangs around were from 8 to 12 feet in height and undercut in many places. The drainage bed widened a little farther on into a lagoon-like depression about a mile long and half a mile across. Two narrow channels winding through it showed cracked clay at their bottom, indicating that scanty moisture still reaches this ground through occasional floods, which accounts for the presence of that hardiest of scrub.

Graves of cemetery L.S.

Next morning I took every available man of our small party to the burial-ground, L.S., that we had passed in the evening. It occupies a small projection near the southern edge of the gravel 'foreshore', which here falls off steeply to the eroded riverine flat some 30 feet below it. Half a mile off to the north rises the much-broken line of Mesas, forming the 'coast-line' or edge of the higher glacis previously referred to. The graves were marked by rows of small posts placed close together and sticking out above the gravel surface, as seen in Fig. 336. They were found in two small groups, at a distance of about 20 yards from each other. Along the southern edge of the little plateau, remains of a wall built of layers of brushwood and gravel were traceable for a distance of about 25 feet, and a few isolated Toghrak posts suggested that this enclosure might have had its continuation on the east. The corroding force of wind-driven sand and gravel was strikingly illustrated by the abraded appearance of the rough wooden posts marking the individual graves. Their tops emerging only a few inches above the surface of the soil had the side facing to the north and east invariably scooped and splintered, while that to the west and south still retained its rounded outline, each top thus presenting a curious semilunar appearance. How high the posts had originally risen above the surface it was impossible to say. But like the wooden enclosures of the graves found at the Lou-lan fort L.F., which they at once recalled by their arrangement, they were probably once much higher.

Burial within stockaded enclosure.

The southern group comprised half a dozen graves. Of these the central grave attracted special attention by its sevenfold stockade of wooden posts neatly fixed in the ground to form an oval, 14 feet long from east to west and 10 feet across. The outer posts measured about 3 to 4 inches in diameter and the inner posts gradually diminished to the size of small tent-pegs. Straight rows of similar posts converged towards the oval from outside on the south and east. The excavation of the interior of this enclosure, marked L.S. 1, yielded a rather puzzling result. Within a foot or so from the surface we found loose sand mixed with calcined fragments of bones. The innermost row of pegs, from 1 to 1½ feet long, had also been affected by heat, and the soil in which they were stuck was burnt red and mixed with bone fragments. In the centre, below a short but stout post, we came at a depth of 2½ feet upon a narrow coffin-like enclosure. It was formed of stout planks fixed close together vertically and about 3 inches thick, just as we had found them at some of the L.F. graves.[5] The enclosure measured 5½ feet from east to west and 1 foot 2 inches across. All the planks had their top ends burned and reduced to the condition of charcoal, what remained of them being about 2 feet long. Within the enclosure only a few calcined human bones were found and the fragment of a small bronze tube, L.S. 1. 02. Outside it we found a surviving fragment of

[4] The same we had found in the dead delta of the Keriya river; cf. *Desert Cathay*, ii. pp. 404, 407.
[5] See above, i. pp. 264 sq.

a coarse woollen fabric and a piece of twisted woollen and grass cord, L.S. 1. 01; also a roughly smoothed stone about 14 inches long and 1 inch in diameter, running to an obtuse point. The method of burial here followed is not easy to determine with certainty, and none of the other graves helped to throw light upon it. The body may have been burned on or within the planked enclosure; then the whole covered in with earth and the stockade of posts fixed around to symbolize the dwelling of the dead.

Contents of grave L.S. 2.

Three small graves found in a row about 18 feet to the east of L.S. 1 revealed a method of burial identical with that observed at L.F.,[6] so that approximately the same period and origin may be attributed to them. The bodies were found laid in hollowed-out tree trunks, over which had been placed cross-pieces of thick wood. The graves L.S. 2 and L.S. 4 had enclosures of boards which touched the top of the rough coffin at its edges. The boards, about 4 feet long, stood in their present condition only a few inches above the surface. In L.S. 2 lay the much-decayed body of an adult, apparently male, the skull of which, L.S. 2. 07, was removed for examination. With it were found the wooden ladle L.S. 2. 02 (Pl. XXVI); the well-made basket-work strainer 2. 03 (Pl. XXVI), inserted in a wooden bowl, 2. 04 (Pl. XXVI); a bone pin, 2. 05 (Pl. XXIV), closely resembling in shape shroud-pins like L.F. ii. 04 (Pl. XXIV); also the fragment of a goat's-hair fabric.

Woman buried in L.S. 3.

The contents of L.S. 3, the grave of a woman, corresponded still more closely to the burials of L.F. Here the wooden pieces forming the top of the coffin were covered with large shallow trays of basket-work, L.S. 3. 02–4 (Pl. XXVIII). The goatskin fixed underneath these had helped to keep off damp. Hence decay had not advanced here as far as in the other graves. Over the head was fastened a close-fitting felt cap, 3. 06, together with a face-cloth, 3. 01 (Pl. XXV), made of a strong woollen fabric having a twisted fringe. By the left proper of the head was placed a melon-shaped grass basket, 3. 05, closely resembling those found at L.F. and L.C. A coarse woollen shroud enveloped the body. In L.S. 4 the corpse, with the exception of the skull and bones, had completely decayed.

Find of coarse wooden figure.

L.S. 5, a grave marked by a quintuple row of posts at the south-eastern corner of the northern group, had a boarded enclosure, 5½ feet long, with the narrower foot end towards the west, as it was also in L.S. 1. No coffin was found here nor any evidence of burning. Only some of the larger bones of the body buried within the enclosure had survived. In the soil close to the surface were found the much-perished remains of what evidently had been meant for a coarse wooden representation of a human figure, about 1½ feet long, the head being marked by a ball, the feet by a knob-like end. This evidently corresponded to the wooden female image L.Q. ii. 01, which Afrāz-gul had found in a grave of the Lou-lan cemetery L.Q.,[7] and the figure L.T. 01, to be presently mentioned, which Lāl Singh had recovered from a grave of L.T.

Stone image found in L.S. 6.

This conclusion was fully confirmed by a find made in L.S. 6, a small grave on the western side of this group and the last one here excavated. A boarded enclosure stood over a coffin made of a hollowed-out-tree trunk, which rested at a depth of only three feet below the surface. Across the top thick pieces of wood had been laid and these again covered with a sheepskin. Notwithstanding this protection the body was found to be much decayed and the shroud completely rotten. However, on the left proper of the head there was found the curious stone image of a woman, L.S. 6. 01 (Pl. XXVI), coarsely modelled without limbs but well carved. This grave, like those from which the much larger wooden figures, L.Q. ii. 01 (Pl. XV) and L.T. 01, were recovered, manifestly belonged to the indigenous Lou-lan population. Hence the long narrow face of the image, with the strong prominent nose, has a distinct interest.

[6] Cf. above, i. pp. 264 sq.

[7] See below, ii. p. 743.

Bundle of *Ephedra* twigs.

The exact significance of this and the other images similarly deposited must remain a subject for further inquiry. Placed over the breast of the body was found a small bundle, L.S. 6. 03 (Pl. XXVI), done up in a thick woollen fabric and wound tightly round with a cord of straw and goat's hair. It contained fragments of twigs which Dr. Rendle, Keeper of Botany at the British Museum, has identified as belonging to the *Ephedra* shrub, treated by the Parsis as the representative of the sacred Haoma plant of Zoroastrian cult (see *Add. and Corr.*).

Burials of indigenous population.

The advanced state of decay of the contents of these graves was in striking contrast with the conditions observed at the cemeteries of L.F. and L.H. Though placed high above the riverine plain and on a barren Sai, these graves may possibly have been exposed to slight subsoil moisture penetrating from such occasional drainage as passes down the shallow beds from the hills to the north. Yet the evidence was sufficient to show that the bodies buried in this little cemetery of L.S. belonged to the same autochthonous population of herdsmen and hunters sparsely inhabiting the Lou-lan tract of which we had found remains on the desolate Mesa of L.F. a year before. Practically all details of the burial customs there observed were represented here also.

Date of burials at L.S.

The objects found here once again illustrated how widely these semi-nomadic Lou-lan people differed in civilization from the Chinese who frequented the high road along what is now the dried-up river. The same striking contrast would present itself to the archaeologist who many centuries hence might have to compare relics from the quarters of the present Chinese rulers of the Tārīm basin with those left by, say, the last generation of the Lopliks, those true successors in manner of life, though not in race, of the Lou-lan people. Where civilization is comparatively so simple and necessarily so tenacious in its fashions, it is difficult to mark changes and by them to determine chronological sequence unless there is ample material. As this is lacking here, it is impossible to indicate the relative age of the burials at L.S. It must be borne in mind, however, that the upper portion of the Kuruk-daryā course probably received seasonal floods for some time after the occupation of the area round the Lou-lan station, L.A., had become impossible. Hence grazing would very likely have continued longer on the river banks than on the ground of the ancient delta, just as we observe it now along the terminal course of the Keriya river, while it has ceased on its dried-up delta.[8] Thus the graves of L.S. and the neighbouring cemetery L.T. may possibly be of somewhat later date than those of L.F.[9]

Cemetery of L.T.

As the examination of the half-dozen graves still left at L.S., some of them on a slightly lower level, was not likely to add much to the evidence already secured, I took my little working party on the following day to the burial-ground which on Lāl Singh's plane-table was marked as 'Cemetery No. 2'. We duly found it about five miles to the east of L.S., at a point where the line of 'coastal' Mesas was broken by great gaps, the glacis on the north sloping down straight to the gravel 'foreshore'. It occupied the top of a small gravel-covered hillock rising slightly above the level of the latter. The graves, about twenty-two in all, covered an area of roughly 20 yards from north to south and 16 yards across. Their position was marked by the tops of narrow boards emerging, as at L.S., above the surface and forming small palisade-like enclosures. But multiple rows of posts around these, such as were found about some graves at L.S., were here absent. The enclosures were on the average 5½ feet long and about 1½ feet across. The narrower or foot end here, too, always pointed westwards.

Owing, perhaps, to the nature of the soil, which on excavation proved to be soft loess under

[8] See *Desert Cathay*, ii. p. 397; *Serindia*, iii. pp. 1240 sq.

[9] The only indication in support of this approximate dating, and it is a slight one, might be sought in the use of the face-cloth (L.S. 3. 01, Pl. XXV). This was not found in the case of the L.F. burials, and might possibly suggest the influence of Chinese examples. But L.Q., too, not far from L.F. also yielded a piece, L.Q. iii. 01, which might be described as a face-cloth.

a surface crust of gravel permeated with *shōr* and extremely hard, the six graves examined contained only bare bones, in some cases not even complete skeletons. No coffins were found in any of them. From one grave in the centre I removed the skull of an adult, L.T. 03. In the same grave was also found a knob-like piece of perished wood, 6 inches long and 4 inches in diameter, which perhaps once belonged to a coarsely carved wooden figure like L.T. 01. This latter figure had been picked up by Lāl Singh almost on the surface when he passed here, and brought to me when he joined me at the Lou-lan station. It is in poor preservation and shows by its splintered surface in front that it had lain exposed for some time to the fierce summer heat of the desert. Comparison with the 'crude female figure carved in wood' which an excellent photograph in Professor Huntington's *Pulse of Asia* shows set up 'at the head of a half-opened ancient grave of poplar posts on the edge of the zone of gravel, near the Kuruk Dariya',[10] makes it appear highly probable that it is the remains of that identical figure. This is suggested in particular by the loss of the front of the head in both figures and the curious convex representation of the lumbar portion. Professor Huntington's description of his journey from the Lou-lan site to Tikenlik[11] makes no reference to this burial-place. But as he followed the foot of the glacis above the 'Dry River', which offered the easiest line of progress, the graves of L.T. were necessarily close to his line of march. It is very probable that a little digging at one of them brought to light this wooden figure, and that it was left behind at the spot, to be picked up eight years later by Lāl Singh. Its likeness to the figure L.Q. ii. 01 (Pl. XV) found by Afrāz-gul at a burial-place in the vicinity of L.F. is striking. There can be little doubt that these graves, like those of the neighbouring site L.S., belong to approximately the same period as that indicated by the finds at L.F., and that the human remains contained in them were those of indigenous Lou-lan people. The absence here of coffins may, perhaps, be taken as pointing to this being the resting-place of humbler folk among the herdsmen who once frequented this now dead riverine belt.

Find of wooden figure.

In all the graves examined at L.T. the bodies showed the same condition of complete decay. This led me to stop the opening of the remaining graves and to use what was left of the day for a survey of the riverine ground to the south-east. Descending to it from the gravel Sai we first crossed a flat stretch of bare clay eroded into small Yārdangs. Then after passing over a depression where the cracked surface of the clay indicated occasional flooding, perhaps by rain-water descending from the Sai, we reached the ancient river-bed plainly marked by thick rows of dead Toghraks on either bank. The banks rose about 25 feet above the bottom of the river-bed, here 93 yards wide at the point where we measured it. Its bottom along the deepest portion was covered with a crust of mud showing cracks manifestly recent, and digging down here for only four feet we struck water. That it was utterly salt was no cause for surprise. But it conclusively proved that water even now at times reaches this portion of the river-bed, if only on occasion of exceptional rain in the hills northward.

Dry river-bed.

The belt of Toghrak jungle occupied banks of sandy soil rising about 10 to 12 feet above the bare flat ground on either side. Judging from the thick beds of dead leaves which could be laid bare by a little digging, the age when this jungle flourished could not be very remote. Many of the trunks were small, as if there had not been time for the trees to reach their full size before the temporary return of water, which had permitted of their growth, had ceased again. Then we passed on the right bank over eroded ground, with low tamarisk-cones here and there, and then struck the river-bed once more at a sharp bend to the south. From high island-like terraces, protected by masses of big dead poplars, a wide view was obtained to the south. But we could see no sign of any other bed lying in front of the high dunes visible in the distance. Then we crossed back to

Belt of dead jungle.

[10] See *Pulse of Asia*, plate facing p. 262.

[11] Cf. *Pulse of Asia*, pp. 262 sq.

the left bank and followed its winding course for some five miles to the neighbourhood of our camp. In spite of a close look-out, no trace was found of ancient occupation in the shape of pottery, timber debris, or the like. Nor did we, in the course of the next two days' marches, come upon any such extensive 'Tatis' as one might have expected from a certain reference, in connexion with the Kuruk-daryā, to 'prosperous villages [having] covered the country for scores of miles'.[12]

Anxiety about Afrāz-gul's party.

From our camp between L.S. and L.T. I decided on March 11th to turn westwards, in order to trace the Kuruk-daryā over a small portion of its course that had not been surveyed either by Dr. Hedin or by Lāl Singh. The latter had closely followed the left bank of the ancient river-bed for over two marches eastwards before turning off to Āltmish-bulak, and had found only one more ancient burial-place on the edge of the gravel Sai along which his route led almost all the way. This point (Map No. 29. c. 3) lay fully twenty miles away from our position, and the description given by Lāl Singh of his 'Cemetery No. 3' indicated that it was of just the same type as the two we had already searched. A visit to it would have cost us three days and involved considerable fatigue for the camels owing to the increasing warmth of the days. My increasing anxiety about Afrāz-gul and his party was an additional reason for forgoing this eastward extension of our search. His arrival at our proposed rendezvous at Ying-p'an was now several days overdue; to move farther east entailed a risk of missing him when he passed along the foot of the Yārdang-bulak-tāgh, as arranged in the instructions I had given him. The fires we had kept burning day and night on a high tamarisk-cone near C. ccxliii in the hope of eventually attracting his attention had failed to relieve my anxiety about the party. Yet both smoke in daytime and fire in the dark are visible for great distances in the desert under tolerably clear atmospheric conditions such as had fortunately favoured us during these days.

Wind-eroded ground to south.

So on March 11th we set out to the south-west in order to see something of the country beyond the right bank of the river. After crossing ground eroded by the wind into low terraces and trenches all running north to south, we struck the bed again, and cutting across one of its many smaller meanders reached a point about three miles from camp where, at a sharp bend to the north-west, the sand at the bottom, some 15 feet below the bank, felt distinctly moist and there was abundance of living thorny scrub. But on the banks the beds of reeds and other vegetation were all dead. Even these quickly disappeared, as we passed into a maze of small Yārdangs, from 4 to 8 feet in height, cut up into short strips and knolls as seen in Fig. 335. As we threaded our way across this curiously reticulated ground, drift-sand in the hollows became steadily more plentiful, and after about three miles of such going we reached the edge of an area completely covered by dunes. They soon rose to 20 or 30 feet in height, forming small Dawāns or ridges such as I had found on a much larger scale in 1906 on my way from the Lou-lan site to the Tārīm. Whatever dead wood was to be found in the troughs between them was all bleached and shapeless owing to great age. Evidently the period when the riverine belt had here extended farther to the south lay very far back. From the top of the ridges no indication of other dead river-courses could be sighted. Their existence farther south, however, is suggested by the bearings of the old beds which both Afrāz-gul and myself had come upon when traversing the dune-covered desert area to the west and south-west of the Lou-lan site.

Well sunk in dry river-bed.

The difficulty of crossing these close-set sand ridges with the camels had made us turn again to the north-west.[13] There we came upon a small depression where the soil at the bottom felt moist, and close by picked up two small fragments of coarse pottery and a small lump of copper

[12] Cf. Huntington, *Pulse of Asia*, p. 263.

[13] The line of our route here, as shown in Map No. 29. B. 3, requires some correction. It extended farther south beyond the point marked by a Yārdang symbol.

ore.[14] These were, apart from the cemeteries, the first relics of former human presence that we had found since leaving the Yārdang-bulak springs. We then had to make our way again across a maze of small reticulated Yārdangs before we regained the right bank of the Kuruk-daryā, which was here fringed by high tamarisk-cones, mostly dead (Fig. 337). Where the bed made a turn to the north-west we found a row of live Toghraks growing within it. Their presence suggested that there was drainage near to the surface. So we halted here, after having covered twelve miles of rather difficult ground. On digging a well in a hollow of the bed water was reached at a depth of only five feet. It proved undrinkable, but less salt than that of the well dug to the south-east of L.T.

Return to Yārdang-bulak.

Patches of wet soil and light *shōr* were again met with next day, when our march was continued up the bed of the dead river. Another piece of coarse pottery was picked up on the right bank near the point where Lāl Singh's plane-table had marked a small 'Tati'.[15] The bed here had an average width of about 250 yards and was lined in most places by steep banks 25 to 30 feet in height. After we had covered some three miles on the left bank the ground previously much furrowed by Yārdangs turned to a bare plain of clay uniformly eroded. This difference, I thought, might be accounted for by the area of *shōr* and scrub found to the north at the mouth of the Yārdang-bulak valley; for this would keep off coarse sand and thus deprive the prevailing north winds, at this point, of much of their corrosive force. After a march of about six miles living tamarisks on small cones became increasingly frequent, proof that we were nearing the southern edge of the vegetation belt which marks the terminal basin of the drainage east of the Charchak hills. Three miles farther we turned off to the north-west, skirted the edge of the gravel Sai descending from the last offshoot of the Charchak-tāgh, and finally struck the thin line of tamarisk-cones that extends along the end of the above-mentioned drainage.[16] Here we came upon our old track to the west of Camp ccxlii and by prolonging our march made our way back the same day to Yārdang-bulak. The more westerly route that we now followed led up the big Wadi which gathers all the drainage east of the Charchak-tāgh. Its great width and its steep banks, undercut in places by the current, clearly marked the great volume which, on occasions of exceptional rainfall, may descend here towards the Kuruk-daryā. It is this drainage that probably accounts for the subsoil water which we had struck at points in the bed of the latter.

Ancient riverine belt.

A few general observations on the physical features of this portion of the Kuruk-daryā, or Kum-daryā as it is also known to the Singer hunters, may conveniently be noted here. Our survey has shown that its course is confined, as far down as Afrāz-gul's Camp ccl. a, to a single bed. The northern curves of its meanders keep in the main within two miles or so of the foot of the Mesa-marked 'coast-line' of the glacis. The width of the riverine belt, as marked by dead jungle and scrub, nowhere exceeds about five miles. It is improbable that any extensive grazing grounds ever existed here during historical times, still less cultivation on any considerable scale; for the difficulty of maintaining canals on this ground, where the fall of level is so very slight and the area capable of irrigation so confined, must have been quite as great here as it now is along the lowest portion of the Tārim. The absence of any large agricultural settlements is sufficiently proved by the fact that notwithstanding the extensive stretches of completely bare ground that

[14] **C. ccxliii. 01–2. Two frs. of pottery,** coarse red, badly burnt, corroded. (From 8 miles SW. of C. ccxliii, Kuruk-daryā.) Gr. M. 2¼".

**C. ccxliii. 03. Lump of copper ore (?).** (From 8 miles SW. of C. ccxliii, Kuruk-daryā.) Gr. M. 2⅜".

[15] **C. ccxliv. 01. Fr. of pottery,** coarse gritty, burnt reddish-grey. Corroded. Gr. M. 2¼".

[16] Through an error of compilation which escaped my attention, Map No. 29. A. 3 shows a patch of vegetation on sandy soil to the west of our route before this crossed that by which Lāl Singh had gained Yaka-yārdang-bulak; it ought to mark here only scant tamarisk-cones to the west of the salt-encrusted ground.

we traversed we came only in two places upon insignificant fragments of pottery, too scant even to indicate a regular shepherd's station.

Ancient high road along Kuruk-daryā.

The importance of this riverine belt lay solely in its providing a practicable and very direct line for the western portion of the ancient Chinese high road connecting Tun-huang with the oases north of the Tārīm. In this respect it may be compared with the riverine belt of the lower Khotan river and the facilities that it offers for the trade route connecting Khotan with Ak-su and Kuchā. In order to trace the position of such ancient roadside stations as had once been maintained in this riverine belt before the Lou-lan route was abandoned, a prolonged and very close search would be needed. The difficulty about water would allow this to be carried out only during the depth of winter, when ice is available at Yārdang-bulak. Those stations were probably placed close to the river banks for the sake of easy access to water and constructed of wattle and timber or perhaps of mere rush walls. They were bound to decay rapidly on ground subject to occasional inundation, or to be buried under the deposits of silt and drift-sand accumulating along the main river-bed. Such archaeologically favourable conditions as once irrigated and subsequently abandoned areas offer in this region for the preservation of remains of dwellings, even when isolated, were here conspicuously absent. As a striking illustration of a similarly rapid disappearance of remains along the Khotan river, I may mention that of the Sangars maintained along it during Yāqūb Bēg's régime, and for a time after, I found it impossible to trace any relics at more than one or two places, though their positions were still well remembered by my guides.

## LIST OF OBJECTS FROM GRAVES OF BURIAL-GROUNDS L.S. AND L.T.

### OBJECTS EXCAVATED IN GRAVES OF BURIAL-GROUND L.S.

**L.S. 02. Mass of hair and wool,** dark brown and yellow.

**L.S. 1. 01. Fr. of woollen fabric,** terra-cotta; coarse yarn, warp perished; and piece of twisted woollen and grass cord. Fabric, gr. M. 3"; cord length 3¼".

**L.S. 1. 02. Fr. of bronze tube;** straight, badly corroded. Length 1¼", diam. ⅛".

**L.S. 2. 01. Bundle of twigs,** long and fine, doubled twice and bound round with another twig. Free ends projecting but broken. Length 10", diam. 1¼". Pl. XXVI.

**L.S. 2. 02. Wooden ladle.** Deep round bowl, with straight projecting handle cut in form in one piece. Fr. of edge broken off but preserved; no orn. Good condition. Length of whole 10⅜"; bowl, diam. 5", depth 2⅛". Pl. XXVI.

**L.S. 2. 03. Basket-work strainer or cover;** parabolic. Centre formed of seven stakes—three inside, at right angles to four outside; the four bound together in centre by wrap-turning or 'paring', before the three are placed below them. The two sets are then joined by two rounds of close paring. Extra stakes are then introduced and the paring is continued, but with gradually increasing width between the rounds, to form an open texture. Number of rounds of 'paring' is fourteen. Border thickened and bound with rather clumsy lapping. Stakes appear to be stems of some climber and paring probably of the same. Well made and preserved. Diam. of mouth 5¾", depth 2¼". Pl. XXVI.

**L. S. 2. 04. Wooden bowl,** elliptical; no flattening for base. Scored underneath with knife-cuts. Faint traces of black paint or lacquer inside and out. Wood hard. Mouth 7¼" × 5¼", depth 3⅜", thickness (average) $\frac{3}{16}$". Pl. XXVI.

**L.S. 2. 05. Bone pin,** from shroud. Round in section, gently tapering, flattened and widened at one end for head; cf. shroud-pins, L.F. ii. 04 (Pl. XXIV). Length 3¼", gr. width ¼". Pl. XXIV.

**L.S. 2. 06. Fr. of goat's-hair fabric,** coarse dark brown, plain weave; orn. with occasional inwoven thread of red or yellow. Sand-encrusted. Gr. M. 3½".

**L.S. 2. 07. Human skull;** adult. Rather pronounced ridge extends from upper half of frontal bone backward along top of head. Thick coating of brown dust lightly adhering to L. side (probably hair) bears impression of coarse canvas (?). All teeth perfect excepting L. upper wisdom, probably recently fallen out; crowns very evenly and smoothly worn. Chin prominent and narrow.

**L.S. 3. 01. Fr. of woollen face-cloth;** coarse plain weave of strong yellowish wool, with twisted fringe of same, and narrow ornamental line of brown wool inwoven along top of fringe. For width of 1¼", within fringed border, double shoots of weft. Selvedge on one side. Well made. Marks of brown discoloration. One corner tied up with goat's-hair cord, containing small broken twigs (*Ephedra*); cf. L.Q. iii. 01, and L.F. 1. 03. Gr. M. 1' 5" × 9". Pl. XXV.

**L.S. 3. 02–4. Two shallow basket-work trays,** and fr. (04) of similar basket-work. Trays of long narrow shovel-shape, with upturned edge round one end only, which is rounded. From this they taper slightly to the other end, which is finished off flat and square. Under side covered with fur (goatskin) dappled brown and yellow, still adhering, fur downwards. Basket-work strongly woven of withies and cane. *02.* Length 1′ 7″, gr. width 1′ ½″, gr. H. of edge 2″. *03.* 1′ 10½″, 1′ 4″, 3″. *04.* Strip from edge of another tray, length 1′ 3″. Pl. XXVIII.

**L.S. 3. 05. Grass basket**; melon-shaped, with goat's-hair string handle, as L.C. 05, Pl. XXVI, &c. Much sand-encrusted. Depth 6⅞″, diam. of mouth 4″.

**L.S. 3. 06. Fr. of felt cap or hood**; plain, close fitting; one ear-flap preserved with string for tying under chin. Much darned. Gr. M. 1′ 3″.

**L.S. 6. 01. Stone figurine of woman,** found near head of female body. Made without limbs, as large wooden figs. L.Q. ii. 01, Pl. XV, and L.T. 01, and generally resembling them, but well carved and showing more detail. Long narrow head and face, with strong prominent nose, long pointed chin, straight eyes (hollows only), and straight groove for mouth.

Narrow round cap, flat-topped, on top of head. Hair taken smoothly back, and done low behind in flat knot. No neck; small pendent breasts, with narrow bands (shown by pairs of incised lines) crossing between them and at back. Double incised line also round waist. Excellent condition. H. 4½″. Pl. XXVI.

**L.S. 6. 02. Frs. of plaited grass and goat's-hair cord**; very fine. Gr. length 2¼″, diam. $\frac{1}{16}$″.

**L.S. 6. 03. Bundle** containing twigs (of *Ephedra*), done up in thick dark-brown woollen cloth and wound tightly round with twisted straw and goat's-hair cord; also tied again with stout goat's-hair cord. 6¾″ × 2⅝″ × 1⅞″. Pl. XXVI.

OBJECTS EXCAVATED IN GRAVES OF BURIAL-GROUND L.T.

**L.T. 01. Carved wooden fig. of woman** (brought by R. B. Lāl Singh), without limbs, as L.Q. ii. 01, Pl. XV; cf. also L.S. 6. 01, Pl. XXVI. Upper part of back flat, and lumbar portion convex instead of concave. Unpainted. Wood perished about upper part; whole front of head broken away, and fig. split down centre. H. 2′ 2″, gr. width 7″, gr. thickness 6″.

**L.T. 02. Mass of hair or wool**; light brown, perished.

**L.T. 03. Human skull of adult.** Lower teeth complete excepting R. wisdom. Most of upper teeth have fallen out. Chin rather broad and not very prominent. Rugged character of surface of mandible, especially near angles, and a corresponding roughness of side of parietal bones indicate powerful muscular development in the jaw.

A small flint is fixed in the bone beside nose at inner angle of R. orbit, but is probably *post mortem*. Vertex rises rather sharply. Bones brittle; traces of tendon on mandible.

## Section IV.—MIĀN AFRĀZ-GUL'S SUPPLEMENTARY SURVEYS

Reunion with Afrāz-gul's party.

On March 13th I was obliged to make a day's halt at Yārdang-bulak in order to let the camels have a rest and good feed after their privations in the desert, before setting out west for the ruins of Ying-p'an. Busy as I was kept with writing and mapping work, my thoughts turned anxiously to Afrāz-gul's little party, now fully a week overdue. After midday, I thought I could hear the faint sound of distant camel bells; but the men were inclined to distrust my ears as on a former exciting occasion.[1] Yet less than half an hour later Hassan Ākhūn appeared in triumph from behind the screening gravel ridges south-eastwards, bringing the best of our hardy camels all safe and sound, though gaunt-looking. Soon after I had the great satisfaction of welcoming Afrāz-gul with his plane-table, travel-worn indeed, owing to the fatigues and privations that the little party had gone through, but fit and keen all the same, rejoicing as much as I did at our successfully achieved concentration. He had marched in accordance with his instructions from the terminal lagoons of the Tārīm at Chainut-köl (Map No. 30. c. 1) past the L.M. site and across big sand Dawāns to the north-west, and had struck the Kuruk-daryā bed near where it first branches out, some twelve miles to the east of L.T. They had first come upon our trail on the gravel glacis above L.T., but its true significance was recognized only when the sharp eyes of Abdulmalik, the hunter, had also detected the footprints of Dash III, my little fox terrier. At the cairn we had built at the Yaka-yārdang-bulak spring Afrāz-gul had duly found the letter left for him; but its date had left him no hope of joining us before Ying-p'an. So his relief was almost as great as mine.

[1] Cf. *Desert Cathay*, ii. p. 409.

Record of Afrāz-gul's observations.

Another day's halt at the spring was necessary in order to let Afrāz-gul's camels recover a little from their week's fasting and hard travel, and to allow of the dressing, by the experienced hands of Hassan Ākhūn, of the manifold cuts and sores from which they, as well as our own camels, were suffering. Nor would the violent Burān which broke upon us at night from the north-east, and caused us much discomfort by its icy blasts all through the day, have allowed us to move. Afrāz-gul's first verbal account had already assured me that, in the face of very serious hardships and of risks by no means negligible, he had succeeded in carrying out completely the programme I had laid down for him at Turfān. Now an inspection of his plane-table sheets, kept as always with scrupulous attention to details, and of his equally full 'route report', showed me how intelligently he had grasped the purposes for which he had had to undergo fatigues and privations. I had sketched out his routes for him with special regard to a number of geographical and antiquarian points of interest, upon which additional surveys along the ancient sea-bed and across the Lop Desert farther west were likely to throw useful light. The care with which he had recorded whatever observations might bear on such points has invested his survey with a value to which the mere reproduction of his route traverses on the map would not do full justice. I therefore consider it desirable to furnish here extracts from Afrāz-gul's route report in condensed translation. I have added to them remarks, where needed, as to the bearing which particular observations may have on questions of archaeological or geographical interest discussed in previous chapters.

Surveyor's march to Deghar.

The surveyor after leaving our base camp at Kara-khōja reached the town of Lukchun on February 6th via Toyuk. Next day he proceeded to the small oasis of Deghar, marking the extreme limit of cultivation in the south-eastern corner of the Turfān depression (Map No. 28. D. 3). Where the wide river-bed coming from Lamjin was crossed, about 3½ miles south of Lukchun, he measured a volume of *c.* 17 cubic feet of water per second. From there to Deghar cultivation was met with only in detached Kārēz-irrigated patches.

Ascent from Deghar.

Vegetation completely ceased beyond the fields of Sai-kārēz, an outlying farm of Deghar. The bed passed a mile beyond, which represents the easternmost drainage channel reaching the Turfān basin from the side of the 'Chöl-tāgh', had evidently received no water for a long time. The route towards Āltmish-bulak which Afrāz-gul's small party followed under the guidance of Abdulmalik, a younger brother of Abdurrahīm, led over absolutely bare gravel Sai to the debouchure of a wide Nullah coming from the south. For two and a half marches from Deghar the route ascended this open valley bordered on either side by low detached hills which gravel or detritus covered for the most part. No vegetation of any sort, live or dead, was met with in the valley, except at a small patch of stunted tamarisks known as Ghuja-yulghun (Map No. 28. D. 4). Nor was there water to be found anywhere.

Across northernmost range of Kuruk-tāgh.

A uniformly gentle slope led the travellers on the third day from Deghar to the Kök-dawān (2,260 ft.), crossing an almost flat watershed. It evidently marks the eastern extension of that northernmost range of the Kuruk-tāgh which the other surveyed routes from the Turfān basin farther to the west cross by the higher saddles of Āt-ölgan-dawān and Igar-dawān (Map No. 28. B, C. 4). To the south of the Kök-dawān the route passed through the terminal basin of a separate drainageless area, containing stretches of salt-encrusted clay. Near the northern and southern limits of this basin there were found respectively the salt springs of Katār-yulghun and Shaldrang-bulak, and around them numerous small tamarisk-cones and a limited amount of scrub.

Springs of *Iltarguch-bulak.*

Beyond Shaldrang-bulak the route took a turn to SSW. and led across a succession of utterly barren plateaus, separated by dry drainage channels and rising at the Iltarguch-dawān to a height of close on 3,400 feet. No vegetation of any sort was met until after two marches the salt springs known as Iltarguch-bulak were reached, by the side of reed-beds and tamarisk-cones. The wide

drainage bed in which they are situated continues for a considerable distance to the north-west, and may be assumed to be connected with the large salt-encrusted depression which the routes from Turfān to Singer cross at Ārpishme-bulak (Map No. 29. B. 1).

Scrub was met more frequently also on the next march. Leading SE. over stretches of gently rising gravel Sai it brought the travellers to a wide salt-encrusted bed fringed with tamarisk-cones, and beyond it to the point known as Bakri-changche. The spring marking it appeared to have dried up years before. Proceeding south from this point on February 14th the main range of the Kuruk-tāgh trending from the direction of Singer [1a] was traversed on an almost imperceptible watershed. Beyond it the route led down a wide drainage bed, lined with scrub, which forms the head of the one passing Āltmish-bulak. At the salt spring known as Kuruk-toghrak-bulak from a dead wild poplar close by, a night's halt was made, reeds and other scrub affording fair grazing for the camels. Thence following the bed down to where it passes in a narrow defile through the outermost hill range overlooking Āltmish-bulak, this little oasis of desert vegetation was reached by February 15th. Descent to *Āltmish-bulak.*

It is clear that the route described above from the surveyor's account, though the most direct between Turfān and 'ancient Lou-lan', can never during historical times have claimed importance as a line of regular communication between the two territories. The routes leading through Singer must always have been preferable owing to easier access to drinkable water and to grazing. Difficulties of direct route.

At Āltmish-bulak the camels were left behind under Hassan Ākhun's care for a much-needed rest. Afrāz-gul with the two remaining men set out on the morning of February 16th for the first task indicated in his instructions, the examination of the remains to the NNE. of the ancient castrum L.E. which on the previous year's visit had been left unexplored.[2] Four days' food and ice rations, besides plane-table, Ketmans, and other indispensable outfit, were carried by the three on their shoulders. The route taken was the same by which on February 25–26, 1914, we had gained this vicinity.[3] Early on the morning of February 17th the little party arrived at the Mesa bearing the small burial-ground, L.Q., noticed by Afrāz-gul on his first reconnaissance (Map No. 32. A. 3). From Āltmish-bulak to L.Q.

The Mesa, *c.* 45 ft. high and 300 yards long at its foot, showed a surface of salt-encrusted clay. Its top bore a number of graves marked by closely set pieces of wood after the fashion previously noted at the graves of L.F.[4] In the majority of cases the bodies and the coffins containing them were found badly decayed. But the finds made in the few better-preserved graves, together with the character of the remains surviving in the rest, made it quite certain that the methods of burial were identical with those observed at the indigenous burial-ground of L.F. In grave ii the body was found badly decayed; but at its foot an interesting object was recovered in the shape of the carved wooden figure of a female, L.Q. ii. 01 (Pl. XV). It closely resembles the images of similar archaic type in wood and stone, L.T. 01 and L.S. 6. 01 (Pl. XXVI), recovered from graves on the Kuruk-daryā.[5] In grave iii the rough coffin was found covered with narrow wooden boards and above them with sheepskins. The body was wrapped in a thick woollen shroud; the head was that of an old man, with red moustache and without beard. The specimen L.Q. iii. 01, taken from the portion of the shroud covering the head, shows a small bunch containing broken twigs as recovered also in L.F. 1. 03 and L.S. 3. 01.[6] Other objects, corresponding to finds from L.F., are the woven grass basket L.Q. iii. 02; the felt head-dress 03; the wooden pins 04–9 (Pl. XXIV). Objects found in graves of L.Q.

The graves traced, among which several were of small children, extended over a distance of about 40 yards. Some 20 yards to the NE. of this area there were found on the surface the fragment Finds on eroded surface.

[1a] See above, ii. p. 722.
[2] See above, i. p. 267.
[3] Cf. above, i. pp. 283 sq.
[4] See above, i. pp. 264 sq.
[5] Cf. above, ii. pp. 735, 737.
[6] Regarding these twigs of the *Ephedra* plant, cf. above, i. p. 265, note 10a; ii. p. 736, and *Add. and Corr.*

of a bronze dagger or spear-head, L.Q. i. 01 (Pl. XXVI); the bronze disc i. 02 (Pl. XXVI); the fr. of a miniature bronze horse (?), i. 03 (Pl. XXIV). The bronze bolt L.Q. 01 had been picked up before on wind-eroded ground some four miles to the north of L.Q.

Visit to watch-post on Mesa to S.

Afrāz-gul completed his search at L.Q. on February 18th in the midst of a violent sand-storm like the one which had overtaken us at L.E. almost exactly on the same date a year earlier.[7] He then visited the Mesa about half a mile due south on which he had noticed a year before what looked like the ruin of a tower. His account records its height as 15 feet, but gives no details of construction. All round it were found reed-straw and dung of cattle, with marks of burning. Clearing of this refuse yielded no 'finds'. In view of the vicinity of the *castrum* L.E. the assumption seems justified that the height of the Mesa had been utilized for an outlying watch-post.

Return to Āltmish-bulak.

Next day Afrāz-gul returned to Āltmish-bulak by a route slightly to the west of the one previously followed and already surveyed. No structural remains were sighted, but the bronze buckle L.Q. 02 was picked up after three miles' march, and some two miles farther on a Chinese copper coin of Han type. Near by small bits of ore seemed to indicate a smelting-place. The physical features of the ground as recorded agree very closely with those noticed by me on the former route.[8]

Start for dried-up Lop sea-bed.

After a day's halt at Āltmish-bulak, used for securing two loads of ice and one of fuel, Afrāz-gul started for the next and difficult task indicated by his instructions. He was to regain the Mesa where on February 28th, 1914, we had found Han coins and other relics marking a halting-place of the ancient Chinese route near the western shore of the great dried-up sea-bed.[9] From there he was to search this shore for indications, if any, of the line which the route might have followed across that salt-encrusted bed. Subsequently he was to survey its extension south-westwards by moving in the direction of the terminal Lop marshes. The first day's march led for the most part along stony or gravel Sai, forming the glacis of the outermost Kuruk-tāgh hills and traversed by numerous shallow drainage beds. Towards the close of the long march outliers were passed of the great belt of Mesas representing Li Tao-yüan's 'Town of the Dragon'.[10] To the north and north-east of Camp ccxxxvii. a. salt-encrusted Yārdangs of the 'White Dragon' type were sighted extending over what seemed a wide depression.

Mesa of coins, dagger, &c., regained.

At the beginning of the next march a well-marked dry bed about 50 yards wide and 20 feet deep was passed. Its direction was from SW. to NE., suggesting a possible connexion with the bed noted the year before near L.J.[11] For some 15 miles an easterly bearing was followed across easy ground with plentiful disintegrated gypsum (the erroneous 'mica' of Map No. 32. A. 3) and occasional Mesas. Farther on a belt of soft *shōr* between salt-encrusted Yārdangs suggested approach to the ground near the Mesa where the coins, dagger, and other relics had been found, and which now was to serve as a landmark. Having failed to recognize this Mesa or to find traces of our passage of the previous year, Afrāz-gul turned to ESE. and pitched his Camp ccxxxviii. a. where a patch of soft clayey ground overlooked the ancient sea-bed with its hard crust of salt (Map No. 32. B. 3). Going back the same evening to the NW. for about 3 miles he succeeded in finding that Mesa and could thus exactly locate his position with reference to the previous year's route.

Search for line of ancient Chinese route.

On the morning of February 23rd Afrāz-gul, leaving the camp where it stood, proceeded with Abdulmalik NNE. and after going about 2½ miles came upon our track of 1914 at the point where we had changed our eastward direction to NNE.[12] From here they turned due east to reach once more the shore of the ancient sea. Having moved in this direction for one mile they found on the

[7] See above, i. p. 267.
[8] Cf. above, i. pp. 283 sq.
[9] See above, i. pp. 296 sq.
[10] See above, i. pp. 292 sqq.
[11] Cf. above, i. p. 288.
[12] See above, i. p. 298.

*shōr*-covered ground a number of small fragments of oxidized iron, C. ccxxxviii. a. 02–6. The significance which this find, obviously representing the remains of some completely decayed implement, has with regard to the line likely to have been followed by the ancient route, has been fully discussed by me before at the close of the chapter recording the search for the ancient Chinese high road.[13] There, too, I have reproduced Afrāz-gul's observations regarding the western shoreline of the dried-up sea-bed where he struck it two miles farther to the east.

On February 24th the journey was started which was to bring the small party over wholly unsurveyed ground to Chainut-köl, the nearest point to the SW. where drinkable water could be hoped for. Regard for the camels, which would have to go without food until then, made it necessary to follow as straight a line towards that goal as physical conditions permitted. Notwithstanding this limitation Afrāz-gul's survey serves to throw adequate light on the character of the westernmost extension of the ancient sea-bed and its dismal shore. The topographical features recorded in his plane-table sheets and reproduced in Maps Nos. 29 and 32 are sufficiently detailed to permit these notes taken from his route report to be restricted to essentials. Start towards Chainut-köl.

Within a quarter of a mile from camp a stretch of hard salt crust, obviously an inlet of the salt-encrusted sea-bed, was entered. After 2½ miles of this trying surface of upheaved salt hummocks there was reached clayey ground, covered with gypsum[14] flakes and flanked by Mesas, 20 to 25 feet high, with the usual NNE.–SSW. bearing. These alternations of clayey soil and hard salt crust repeated themselves throughout the day's march, which covered well over 25 miles. They suggest a much-indented coast-line on this side of the ancient sea. No Yārdangs or Mesas were passed near the route after about ten miles' march. An interesting feature farther on was a wide winding depression encrusted with hard salt (see Map No. 32. A. 3) which the surveyor was inclined to take for a deltaic river-bed. Move along salt-encrusted sea-bed.

On the march of the next day the first 9 miles or so were covered over hard salt-encrusted clay. Then followed for close on 10 miles difficult stretches of hard salt crust where blocks of solid salt were heaped up like hummocky ice to a height of 3 or 4 feet and in places even higher. In the midst of this dismal ground trunks of dead Toghraks were found. They had obviously been brought down by floods in the beds which were crossed at frequent intervals and became more and more well defined. These beds obviously represent the termination of the dead delta of the Kuruk-daryā. Near one of these beds the clayey bank retained dead reeds. At Camp ccxl. a. (Map No. 29. D. 4) the banks of such a bed showed small wind-eroded terraces of clay covered with dead reeds; within the bed dead Toghraks lay in plenty. Terminal beds of dead delta.

Notwithstanding such encouraging signs of approach to ground which in historical times was reached by river water, the march of February 26th still proved a trying one for men and camels. The clayey ground with dead reeds and Toghraks after about 10 miles gave way to hard salt crust with crumpled-up ridges 2–3 feet high. But after crossing this ground for *c.* 7 miles a dry river-bed was reached, and beyond it small tamarisk-cones in plenty on wind-eroded sandy soil. Here at Camp ccxli. a. the most trying portion of this Lop exploration was ended. Trying ground of hard salt crust.

The next day's march led over wind-eroded sandy ground. From the camp onwards an old river-bed could be sighted for a considerable distance. Rows of dead Toghraks, standing still upright, clearly marked its winding bed. Its direction indicated connexion with the bed traced close to the fort L.K. and farther west. Coarse pottery and fragments of iron were picked up near the bed within 1½ miles from camp. Tamarisk-cones, first dead then living, were passed in increasing numbers. Small lake-beds with *shōr*-deposits of manifestly recent date on their margins assured the surveyor that he had arrived at ground which was still within reach of floods from the Move to *Chainut-köl.*

[13] See above, i. p. 312.

[14] Shown throughout the map with the erroneous entry of 'mica'.

dying Tārīm, and that the goal he had steered for was near. The exhausted condition of one of his camels necessitated short marches. But moving over ground recognizable from the mapping here done by us in 1906 and 1913 he finally brought his little party in safety to the northern edge of the Chainut-köl on the morning of March 1st.

Flood filling lake-bed.

Regard for the condition of the camels, all severely tried by the preceding marches and their long fast, obliged Afrāz-gul to halt at Chainut-köl for the next four days. He found the ice in the small pond near which our Camp lxxxix of February 3rd, 1914, had stood,[15] practically all melted. But the large lake basin south of it, then completely dry, was being rapidly filled with fresh water from the newly arrived spring flood of the Tārīm. On March 3rd and 4th he carefully surveyed the actual shores of the Chainut-köl (Map No. 30. c. 1). The network of channels in which water was pouring into the lake could not be crossed. But in the main channel the surveyor measured a volume of not less than 700 cubic feet per second. On the following day he proceeded to SW., and following those channels upwards ascertained that water overflowing from them had already filled the large lagoon of Yaghizmak-kōl which had been found dry and crossed by us in February, 1914.

March N. to L.M. site.

To the NE. of Chainut-köl, too, depressions then dry were being rapidly reached by flood water spreading in narrow channels, as Afrāz-gul found when he started on March 6th for the desert crossing which was to bring him to our rendezvous at Yārdang-bulak. In accordance with his instructions he proceeded by our former route to Camp xc and thence struck due north for the site of L.M. explored the year before. On the way to the latter big ridges of drift-sand up to 100 feet in height had to be crossed, as Map No. 29. c. 4 shows. Among relics in stone, pottery, and bronze picked up between L.L. and L.M. and described in the List below, the large jade celt C. ccxlv. a. 02 (Pl. XXII) deserves special mention.

Ruined dwellings of L.R.

When dealing in Chapter vi with the remains explored at L.M., it has already been recorded that the extensive search which Afrāz-gul thence made on March 8th to the east and north-east did not lead to the discovery of more ruins. But when he resumed his march in the originally indicated direction to the NW. he came, after covering two miles, upon the remains of three detached dwellings occupying the top of wind-eroded terraces and marked by L.R. on the map. They were built like those of the L.M. site of Toghrak timber and wattle. Of the one marked i only timber debris survived on the top, about 15 feet in diameter, of a terrace 12 feet high. No finds were made here. Some 100 yards to the NE. of this there survived portions of the walls of another structure, ii, on a terrace *c.* 6 feet high. One room traceable to the east apparently measured 21 by 27 feet, and held much sand. Another smaller one adjoining westwards was completely filled by it. In a third structure, iii, found about 200 yards to the NE. and on a similar wind-eroded mound, the surveyor was able to distinguish 5 to 6 rooms within a total area of about 55 by 51 feet. Here, too, the sand lay too high, on the west up to 10 feet, to permit of any serious clearing being attempted by the surveyor and his few companions; only very limited time could safely be spared in view of the difficult desert journey still before them. The clearing of a refuse deposit outside ii yielded no finds. So Afrāz-gul had to content himself with the small objects in bronze, iron, stone, and glass which were picked up on the eroded slopes of L.R. ii and iii. They have been described in the List following the account rendered above of L.M.[16] They suffice to prove that the ruined dwellings were occupied about the same period as those of the sites L.K.–L.M. to the south.

Old river-bed N.W. of L.R.

On March 9th resumed progress to the NW. brought Afrāz-gul within a mile from L.R. to a well-marked river-bed about 100 yards wide with a winding course apparently from the NE. Much of the bed, 50 feet deep in places, was overrun by big dunes. This old bed was last seen

[15] See above, i. p. 182.

[16] See above, i. p. 204.

about two miles from camp. It was winding from N. to SE., i. e. in the direction of L.M. and L.K., whence its probable continuation had a year before been traced clearly enough.[17]

The whole of the day's march lay across ground covered by high dunes. Wind-eroded trenches were met with in places during the first portion of the march, but no regular Yārdangs. Dead tamarisk-cones and Toghraks, too, were frequently sighted in depressions between the dunes. The map shows the places where high 'Dawāns' of sand up to 70 feet in height and running approximately N. to S. were encountered. Some 9 miles from L.R. a small fragment of iron and some pottery debris attested the passage of man within historical times. On the march of March 10th the sandy desert crossed retained the same difficult character. In at least three places lines of dead wild poplars emerging from the sand seemed to mark former courses of water coming from the side of the Kuruk-daryā. But owing probably to the height and closeness of the dunes no definite beds were noticed. Small pottery debris and a bronze fragment were picked up about 10 miles from Camp ccxlviii. a. A couple of miles beyond a big 'Dawān' of an estimated height of over 100 feet was crossed. Marches across high dunes.

Near Camp ccxlix. a. Afrāz-gul's survey shows an old bed coming from the west, marked by lines of dead Toghraks. The presence of water at a period not too remote was indicated also by plenty of dead reeds and tamarisks. Farther on Yārdangs became increasingly frequent between the dunes, a distinct change indicating approach to the wind-eroded riverine belt of the Kuruk-daryā. Here between 3 and 4 miles' distance from camp there were picked up in succession first fragments of a Chinese coin and then miscellaneous small stone implements and potsherds (C. ccxlix. a. 02–11). One more big sand 'Dawān' was crossed before entering the zone of closely packed Yārdangs, almost clear of dunes, stretching along the Kuruk-daryā where it skirts the gravel glacis of the Kuruk-tāgh. This ground proved as difficult for the camels as that encountered around the Lou-lan station, L.A. Their exhaustion obliged Afrāz-gul to halt as soon as the main bed of the Kuruk-daryā was struck. It measured here about 100 yards in width and 20 feet in average depth. Yārdang belt along Kuruk-daryā.

Resuming his march along it on the morning of February 12th the surveyor, after covering about 3½ miles, came upon traces of R.B. Lal Singh's passage the year before. Having crossed to the north of the river-bed for the sake of easier going he then came, among the Mesas to the north of the graveyard L.T., upon my own party's footprints and then upon the track we had followed on the march from Yaka-yārdang-bulak. Our happy reunion which followed next day has already been related above. The brief record here presented of Afrāz-gul's surveys on this journey will, I hope, suffice to explain the warm appreciation felt by me for the admirable skill, perseverance, and pluck with which he had carried through his difficult task.

OBJECTS EXCAVATED IN GRAVES OF CEMETERY L.Q.

**L.Q. 01. Bronze bolt,** cylindrical, with flat sq. head. At other end hole bored through probably for linch-pin. Liver-coloured patina. Good condition. Length 2⅛", diam. $\frac{7}{16}$", head $\frac{9}{16}$" sq.

**L.Q. 02. Bronze buckle;** plain wide D-shape, with very thick bar across middle. Tongue lost. Fair condition. 1" × ¾".

**L.Q. i. 01. Fr. of bronze dagger or spear-head.** Long leaf-shape, point broken off. Handle or tang is ribbed horizontally and thickens at butt, presenting an irregular elliptical section at end. From edges of this end surface six round rods projected, one at each end or major axis, and two at each side. Badly made. Sand-encrusted. Length (broken) 7⅛", gr. width of blade 1¼". Pl. XXVI.

**L.Q. i. 02. Bronze mirror (?);** thin disc, entirely corroded. Two small holes bored near edge at opposite ends of diam. No signs of boss. Diam. 4¼", thickness under $\frac{1}{16}$". Pl. XXVI.

**L.Q. i. 03. Fr. of miniature bronze quadruped,** possibly

[17] Cf. above, i. pp. 184, 192, 197.

horse (?). Legs lost. Much corroded. Length 1 3/8". Pl. XXIV.

**L.Q. ii. 01. Carved wooden female figure,** without limbs (found in grave near feet). Very crude. No facial features, but hair in short tail at back of shoulders. Head too large, breasts small and abrupt; no neck; narrow waist; curve of back in profile well marked. Painted red ochre colour. For other exx., see L.T. 01 and L.S. 6. 01, Pl. XXVI. 2' 1" × 6". Pl. XV.

**L.Q. iii. 01. Fr. of woollen face-cloth (?);** thick soft buff wool; plain weave very even, regular, and supple; dark discoloration in places. One part tied up with cord into small bag, containing fine broken stalks (of *Ephedra*). Three short wooden pins stuck through one corner, one charred, and marks of other pin-holes. Cloth from beginning of web with selvedge also on one side. For another, see L.S. 3. 01, Pl. XXV, also (for stalks) L.F. 1. 03. 2' 5" × 1' 7".

**L.Q. iii. 02. Woven grass basket,** melon-shaped, as L.C. 05, &c. Remains of goat's-hair handle, with tassel. Sand-encrusted. Depth 7", diam. of mouth *c.* 4".

**L.Q. iii. 03. Fr. of felt head-dress,** laced and plumed, as L.F. 01. Bad condition; feathers lost; shafts remain. H. 7 1/2".

**L.Q. iii. 04–6. Three wooden pins** from shroud, as L.F. ii. 04, &c. Barrel-headed; 04 and 05 orn. with ten spiral lines of minute triangular incisions, adjoining at bases; 06 with seven annular lines of same, as L.F. 05. a. Lengths 4 1/2" to 4 3/4", gr. length of head (*06*), 1 1/4", gr. diam. 5/16". Pl. XXIV.

**L.Q. iii. 07–9. Three wooden pins** from shroud. Tapering gradually from one end, which (as head) is left natural thickness of stick, with bark on, and finished off in abrupt point (broken); cf. L.F. 3. 02. Lengths 3 3/8" to 3 11/16", gr. diam. (*07*) 1/4". Pl. XXIV.

OBJECTS FOUND IN LOP DESERT BETWEEN CAMPS CCXXXVIII. A. AND CCL. A.

**C. ccxxxviii. a. 02–6. Frs. of iron,** oxidized, found among Yārdangs by edge of salt-encrusted dry sea-bed, NNE. of C. ccxxxviii. a. *c.* 3/16" diam.

**C. ccxli. a. 01–2. Two frs. of pottery;** coarse grey; badly burnt. Gr. M. (*01*) 2 1/4".

**C. ccxli. a. 03. a–b. Two frs. of iron,** corroded. Gr. M. 2 3/8".

**C. ccxli. a. 04–6. Three frs. of stone.** *04*, grey quartz-like, 1 1/2" × 1 1/8" × 3/8"; *05*, pink, 1 3/8" × 1 1/8" × 3/8"; *06*, dark grey, 1 3/8" × 5/8" × 3/8".

**C. ccxlv. a. 01. Fr. of pottery;** coarse clay, burnt reddish-grey. Gr. M. 1 1/2".

**C. ccxlv. a. 02. Jade celt:** large, good condition. Edge chipped and blunted. Length 3 3/8", gr. width 2 1/4", gr. thickness 9/16". Pl. XXII.

**C. ccxlv. a. 03. Fr. of bronze tube;** cast, orn. with depression rings round ends, and bulbous swelling in middle. Length 1", diam. 1/4" to 3/8". Pl. XXIII.

**C. ccxlv. a. 04–5. Two frs. of stone flakes (blades),** yellow-brown and greenish-grey. Length (*04*) 2 1/16"; 05 fr. only.

**C. ccxlv. a. 06–8. Three irregular stone flakes;** 06–7 black, 06 with bulb of percussion; 08 chocolate, with well-marked bulb of percussion. Gr. M. (*08*) 1 5/16".

**C. ccxlv. a. 09. Fr. of pottery,** from straight-sided vessel. Grey, full of coarse black grit. Orn. with four rows, 1" apart, of short sloping incised lines, the slope being reversed in alternate rows; cf. *Ser.* iv. Pl. IV, C. 122. 001. Broken in three. 4 1/4" × 3" × 1/4". Pl. XXIII.

**C. ccxlv. a. 010. Fr. of bronze arrow-head,** of flat two-bladed type with rounded central rib; cf. C. xciii. 069. Cracked and corroded. Length (incomplete) 1 1/4", gr. width 3/8". Pl. XXIII.

**C. ccxlix. a. 01. Fr. of glass,** green, translucent; one side concave, from inside of vessel (?). Gr. M. 3/4". Pl. XXIII.

**C. ccxlix. a. 02. Fr. of pottery:** dark red, black face each side. Smooth and hard; wheel-made. Gr. M. 2 3/8", thickness 5/16". (02–13 found 4 miles NW. of C. ccxlix. a.)

**C. ccxlix. a. 03. Fr. of pottery,** coarse clay, burnt blackish-red, ill washed; orn. outside with herring-bone series of short incised dashes. Cf. *Ser.* iv. Pl. IV, C. 122. 001. Eroded. Gr. M. 1 3/4". Pl. XXIII.

**C. ccxlix. a. 04. Fr. of grey lamellar stone,** full of gypsum. Gr. M. 1 3/4".

**C. ccxlix. a. 05–6. Two stone flakes (blades);** long, narrow, greenish-grey and yellow-brown, respectively. Edges worn. Gr. length (*06*) 3 1/16". Pl. XXII.

**C. ccxlix. a. 07. Stone leaf-shaped arrow-head,** as L.I. 012. Dark purple stone, evenly chipped and symmetrically notched at edges. Length 1 13/16". Pl. XXII.

**C. ccxlix. a. 08–11. Four frs. of bronze,** flat, slightly curved. Corroded. Gr. M. (*011*) 1 1/16" × 3/4".

**C. ccxlix. a. 012–13. Flat stone ring.** White stone, somewhat roughly made. Perhaps natural formation. Outer diam. 2 1/4", inner diam. 13/16", gr. thickness *c.* 7/16".

# CHAPTER XXI

## ON THE ANCIENT ROUTE ALONG THE KONCHE-DARYĀ

### Section I.—THE RUINS OF YING-P'AN

On March 17th, while the bitter north-east gale still continued, I started from Yārdang-bulak for Ying-p'an, leaving Afrāz-gul's party behind to rejoin me by the Singer–Ying-p'an track after another day's well-earned rest. Muḥammad Bāqir, pleased at his brief meeting with his brother from Turfān, was glad to be discharged to his home at Singer so as to convey there safely such portions of the wild camel he had bagged as his own big camel could carry. Afrāz-gul would find his way to the Singer–Ying-p'an route with ease, in order to rejoin me. I myself, guided by Abdulmalik, followed a shorter route. It took us on the first day up the wide trough that we had previously descended from Jigda-bulak and thus on to a broad gravel plateau which continues the north-western end of the Charchak-tāgh towards Toghrak-bulak. The ground traversed on our way to Camp ccxlv was just as barren as the Sai of stone and gravel over which our previous route had led. But on the plateau where we camped there rose at least scattered tamarisk-cones, which supplied us with fuel. We had approached sufficiently close to the Charchak-tāgh to see that while the foot of this outermost hill range was completely buried in gravel, its upper portion rose here with wall-like steepness in a continuous line. Start for Ying-p'an.

On the following day we turned to the west and, descending from the plateau across several well-marked dry drainage beds, approached an isolated hill spur, conspicuous by the red colour of its sandstone. It is known to the folk of Singer as *Toghra-tāgh* from its lying transversely across the Ying-p'an road. An easy saddle took us over the middle of this low spur to a wide peneplain with plenty of the 'Chikanda' scrub growing on small cones, and here at the foot of whitish clay cliffs we struck the Ying-p'an 'road' (Map No. 25, D. 3). The Burān had practically effaced the track, and without Abdulmalik we might easily have passed on beyond it. The 'road' led to the west-south-west and at a distance of about 12 miles from Camp ccxlv brought us to the edge of the peneplain. It was clearly marked by a line of Mesas forming a kind of shelf which closely recalled that seen on our marches between Yaka-yārdang-bulak and L.T. above the Kuruk-daryā. This resemblance struck me all the more because, after we had covered about three miles more over a gravel Sai which seemed to the eye almost level, so gentle was its slope to the south, we came to the sharply marked line of a second shelf dipping steeply down, just as the Sai of the 'foreshore' does to the riverine belt of the Kuruk-daryā where previously seen. Descent from Kuruk-tāgh.

This now soon came into view to the south in the shape of a continuous dark line formed by tamarisk-cones. Moving diagonally towards it we reached its edge after proceeding about six miles. We then crossed a zone of abundant vegetation of reeds and scrub, such as our eyes had not seen since we left the northern slopes of the T'ien-shan, and arrived at a line of live Toghraks stretching along an old river-bed filled by a fresh-water marsh. There, after a long day's march, we pitched camp at the ruined Chinese station which had been occupied while the postal route from Lop to Turfān was maintained after the reconquest. We were welcomed by a few men from Tikenlik, whom the headman of that small oasis had dispatched with much-needed supplies in Arrival at Ying-p'an station.

response to a request sent on from Singer. Among them I found to my surprise a Panjābī, Nishān 'Alī, whom I had seen fourteen years before employed as a peon of the British Consulate at Kāshgar. His subsequent drift as a petty trader to the extreme east of habitable ground in the Tārīm basin seemed an apt illustration of a process which in ancient times also might have brought men from India, and from even more distant places in the Near East, to outlying oases like Mīrān.[1] In order to protect myself against possible obstruction, in case excavation work should be called for, I took care to send the little party back to Tikenlik by daybreak with a request for more supplies and a guide towards Korla.

Ruins near Ying-p'an station.

Next morning I set out with the few available men of my own party for the ruins to the north-east of the Ying-p'an station. The merit of having noted them belongs to Dr. Sven Hedin, who first passed them on March 26, 1896, on his way from Korla to Lop.[2] But from the very summary account then recorded, to which a second visit paid on March 10, 1900, by the same distinguished explorer had added but few details,[3] I had not been able to form any definite idea as to the character and date of the site. Yet its very name, obviously the Chinese *Ying-p'an* meaning 'military encampment', seemed significant. On the first occasion Dr. Hedin had been inclined to ascribe to its remains a comparatively recent origin. It was therefore a pleasant surprise when after we had covered about three and a half miles, partly over gravel Sai with scanty tamarisk-cones and partly across the wide scrub-covered alluvial fan formed by the flood-bed of the Shindī river, a striking group of ruined Stūpas came into sight near the western flank of the principal mouth through which the river debouches (Fig. 340).

Site of ruined Stūpas.

The ruins rise, as seen in the sketch-plan (Pl. 36), on a small isolated plateau which a branch channel of the great flood-bed of the Shindī river descending from the north-east has cut off from the continuous gravel terrace behind. The little island-like plateau rises to a height of about 28 feet above the flat ground to the south, cut up at its foot by a number of small interlacing channels. Erosion by water has turned the steep slopes of the plateau into almost vertical cliffs at the northern end. The plateau itself, which measures about 150 yards in length with a width of about 50 yards where widest, has been eroded into a number of narrow ridges spreading out spider-like and barely leaving space on their summits for the small Stūpas which crown them. The disposition of these structures clearly adapts itself to this configuration and incidentally proves that the much-eroded shape of the plateau is of earlier date than their erection.

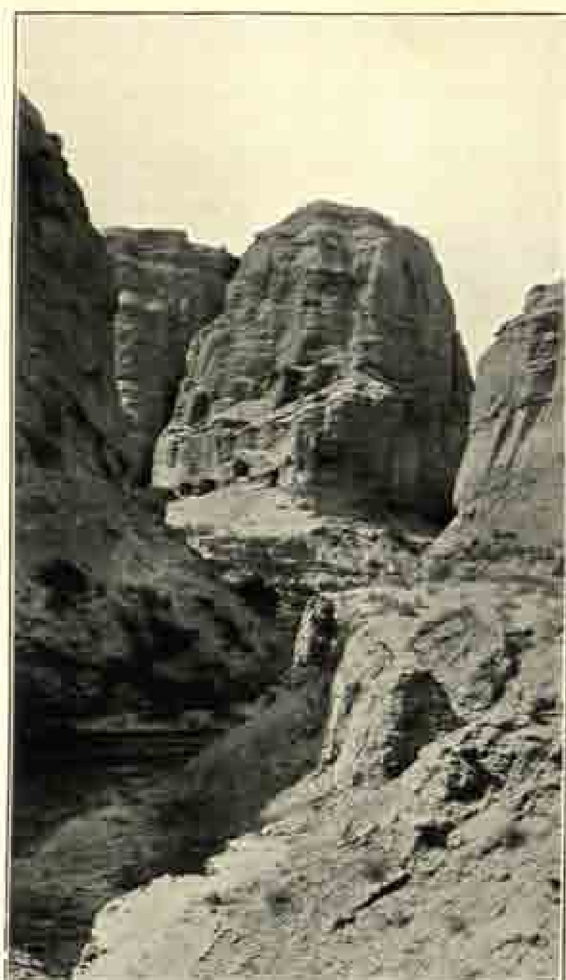
Ruined Stūpa Y. I. i.

The centre of the plateau top, as seen in the sketch-plan (Pl. 37), is occupied by the main Stūpa Ying. I. i (Fig. 349). Its domed portion had suffered great damage, having apparently been dug into long ago by treasure-seekers, and its original height could no longer be determined. But as the sketch-plan (Pl. 38) shows, its diameter was about 14 feet. It appears to have rested on a threefold base of which, however, only the lowest step, 26 feet square and 7 feet high, could be made out with certainty. A layer of tamarisk brushwood inserted at its top had helped to preserve it better than the two receding steps which surmounted it. A flight of much broken stairs led to the top of this lowest step. The masonry consisted of very hard sun-dried bricks, measuring 15 × 12 × 3 inches. In the base layers of stamped clay and gravel, 5 to 6 inches in thickness, had been introduced between single courses of bricks. A brick wall about 3 feet thick and measuring about 61 feet by 50 appeared to have been built as support for a rectangular platform around the Stūpa; but of this little remained except on the east and west. Low walls adjoining at the south-western corner of this platform marked the position of a small structure which appeared to have been completely destroyed in the course of some recent digging. Its character, whether shrine or quarters for attendants, could no longer be determined.

[1] Cf. *Serindia*, i. pp. 530 sq.   [2] See Hedin, *Reisen in Z.-A.*, p. 76.   [3] Cf. Hedin, *Central Asia*, ii. pp. 30 sq.



340. GROUP OF RUINED STŪPAS, YING-P'AN SITE.



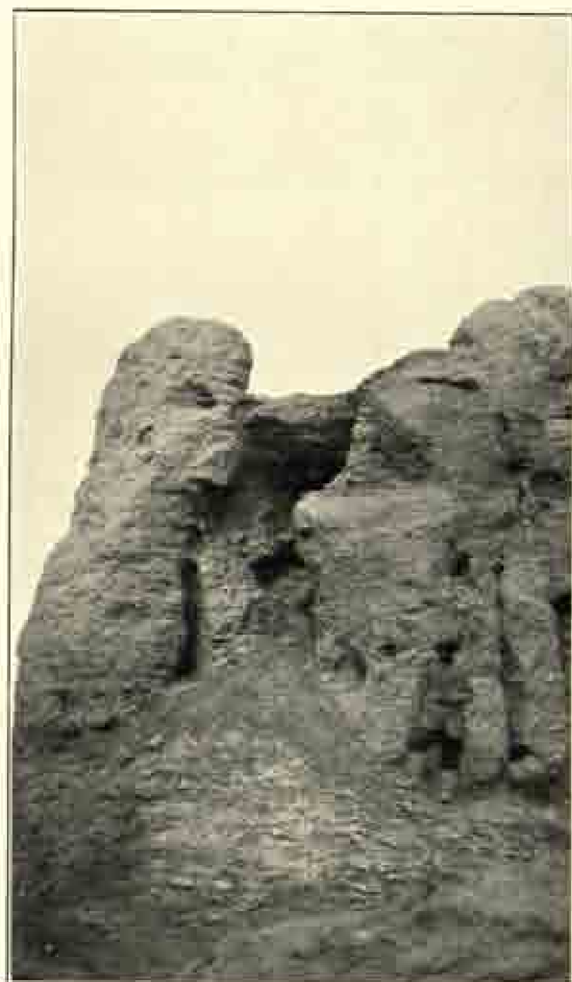
343. CAVE-SHRINES IN GORGE OF KIZIL MING-OI.



341. RUINED CIRCUMVALLATION OF YING-P'AN SITE, SEEN FROM WEST.



342. RUINED SHRINE, YING. II, YING-P'AN SITE, SEEN FROM SOUTH-WEST.



344. RUINED WATCH-TOWER, KOYUK-TURA.

Remains of Kharoṣṭhī documents.

A *Wu-shu* coin, which was found lying on the surface near the north-western corner of the court, gave me the first definite indication of the early date of these ruins. But other evidence came to light when I set men to clear the refuse layers which closer inspection soon revealed in several places near the main Stūpa. They had fortunately escaped the attention of those who had previously searched the remains of the site in the manner to be presently described. The largest of these rubbish-heaps, Y. I. a, was found to cover the slope below the eastern edge of the platform. It consisted chiefly of broken pieces of wood, reed-straw, ashes, and fragments of fabrics and worked leather, all proofs that there must also have been living quarters of some sort on the ground above. As the refuse was being carefully sifted there came to light, to my great satisfaction, below the north-eastern corner of the platform the fragment of a wooden document, about 4 inches long, bearing two short lines of Kharoṣṭhī on one side, with the rest of the surface as if scraped. Soon there followed three small 'shavings' from wooden documents with Kharoṣṭhī writing, just like the 'shavings' of Chinese slips which had been found by me in large numbers at the Lou-lan station and along the Tun-huang Limes.[4] The type of the writing seemed to resemble closely that of the Kharoṣṭhī documents obtained from the ruins of the former, and the use of this Indian script clearly pointed in itself to approximately the same period as that to which the Lou-lan remains belong.

Miscellaneous finds in refuse.

Among the miscellaneous objects found here, fragments of woollen fabrics, both fine and coarse, are numerous. Mr. Andrews' examination of specimens of these textiles has shown warp-rib weave in the majority of them (Ying. a. 03–4; I. a. 017–19, 21). This specially deserves attention, since this technique is a distinctive mark of all the Chinese figured silks recovered from the Lou-lan cemetery L.C. The total absence of silk fragments, on the other hand, might suggest that those who ordinarily attended at this sacred spot were not Chinese but of local race. Little reliance, however, can be placed on merely negative evidence of this kind. Of other relics may be mentioned a wooden pen, Ying. a. 01; fragments of lacquered wood, Ying. a. 09, I. a. 02; of bands, &c., of goat's hair, a. 05, I. a. 012, 016; of a strong pile fabric of wool, I. a. 015. The pieces of a vine-stem, I. a. 014, are of interest as evidence of viticulture in the neighbourhood. Two smaller accumulations of refuse, b and c, to the north and north-west of the main Stūpa yielded wheat-straw, fragments of pottery vessels, and the like (see List). Such pieces of worked timber as were found among the debris of a small completely wrecked structure to the north of the Stūpa were all of Toghrak wood. We also came upon evidence that the sacred locality had been visited down to late Buddhist times, in the shape of a *K'ai-yüan* coin, a T'ang issue, of which two fragments were picked up on the top of the refuse near the north-eastern corner of the platform.

Site of an ancient *Su-bāshi*.

Grouped around the central shrine were found nine smaller Stūpas, as shown in the sketch-plan (Pl. 37). They had all been dug into and otherwise had suffered much damage; but of most the bases could still be made out, measuring between 15 and 5 feet square. No relics were found on the bare gravel around them. The position of all these marks of Buddhist worship crowded together on the little plateau left no doubt in my mind that the spot had been held sacred as a *Su-bāshi* or 'head of the waters'. I have had occasion before to refer to the sites thus designated, found where rivers debouch above oases of the Tārīm basin, and to the worship they receive from the modern occupants of the lands irrigated by those rivers. The shrines found at Kohmārī on the Kara-kāsh river of Khotan, at Toyuk, Ara-tam, and above the outfall of the two rivers of Kuchā are all illustrations of this local worship, continued from ancient times to the present.[5] This was obviously the place to which the inhabitants of a settlement dependent on the Shindī river for

[4] Cf. *Serindia*, i. p. 375; ii. pp. 598, 646, 685, 763.

[5] Cf. *Ancient Khotan*, i. p. 189; *Serindia*, iii. pp. 1151, 1155, 1238; also above, i. p. 166 sq., regarding Bāsh-koyumal above Charkhlik.

the irrigation of their fields could most appropriately and conveniently proceed to pray for an adequate supply of water to fill their canals ; for the point where the Shindi river actually debouches from the foot-hills to make its way down to the Ying-p'an site across the thirsty gravel glacis is, as shown by Dr. Hedin's map, fully ten miles away, a distance too great both for cultivators and priests to attend upon shrines.[6]

From the top of the little plateau the remains of two more Stūpas were visible to the north-east. Proceeding there along the main flood-bed of the river, I found that about three-quarters of a mile above the ruins of Ying. I it divided into two shallow channels containing scrub and tamarisks. Between them ran a narrow tongue of raised ground, and on this we soon came upon distinct traces of an old canal. Its banks, worn down by the winds, were built of gravel and clay, just as Abdulmalik said he had seen them higher up near Bējān-tura where the river-bed debouches from the hills. Its bottom still showed up clearly as a band of hard clay, 4 to 5 feet wide, with boulders placed along it here and there to strengthen the canal banks. The direction of the canal was traceable also by the stumps of tamarisks which had once grown up along its sides. We followed it without difficulty for over half a mile and then crossed the eastern channel to its left bank.

Small Stūpas near canal to NE.

Of the two small Stūpas which we reached at this point, the more southerly had decayed into a mere mound of brickwork, about 17 feet across at its debris-covered foot and about 13 feet high. But from about 3 feet upwards the circular shape of the superstructure could still be made out. The second Stūpa, standing about 400 yards farther north, was somewhat better preserved. It had a base 15 feet square and close on 7 feet in height, surmounted by a dome rising 8½ feet more to its broken top. The masonry in both Stūpas consisted of sun-dried bricks, very hard and containing but little straw, measuring about 15" × 12" × 3". In the northern one the lowest portion of the base showed two layers of stamped clay, about 6 inches thick, separated by a single brick course, just as in the base of the Stūpa Ying. I. The north-eastern foot of the base showed some undercutting by wind-erosion ; but the general level of the gravel-covered surface had not been lowered since the construction of these Stūpas, though exposed to the full force of the winds sweeping across the bare Sai. There was nothing now to suggest the particular reason why the Stūpas had been erected just at this spot. On ground so remarkably uniform as the Sai of this alluvial fan, the position of canal heads would necessarily be shifted with the lapse of centuries, and the abandoned canal we had previously traced on the opposite side of the flood channel did not appear to me of great antiquity.

Muhammadan burial-place.

That the site of Ying-p'an, in fact, had been reoccupied at a more recent period was a conclusion that had been already suggested by Dr. Hedin's notice of a Muhammadan burial-place to the north-east of the circumvallation to be described farther on. So I was not surprised when on our return towards the ruined shrine Ying. I we came, at a point about three-quarters of a mile above it, upon a number of graves, manifestly Muhammadan, occupying a small clay terrace below the edge of the Sai and on the right bank of the united flood-bed. There were about thirty-three of them, all marked by small oblong mounds of *kisek* or brick-like lumps of hard clay and orientated from north to south in orthodox Muslim fashion. Where some recent flood had cut into the edge of the small terrace two or three lay half open. In one the head of the body was seen clearly turned to the west, towards Mecca, and in none was the coarse cotton of the shrouds decayed, notwith-

[6] For that actual debouchure, see Plate 19 in Hedin, *Central Asia*, Maps, vol. i. In the name *Budschentubulah* there marked we have another instance of the transformation which the name *Bējān-tura* has undergone in careless Turfānlik pronunciation ; cf. above, ii. p. 720, note 3. Abdulmalik clearly indicated to me *Bējān-tura* as the true name of the place, also known as Aghiz-aghzi, 'mouth of the gorge'.

I may note here that the conjectural representation in Map No. 25. D. 2, of the Shindi defile below Inkur-otak, the lowest point reached by me, is an error of compilation which, I regret, escaped my attention when correcting the hill drawing of this sheet.

standing the proximity of the graves to ground that was occasionally flooded. From this and the good preservation of the grave mounds it seemed safe to conclude that the Muhammadan settlement to which this small cemetery belonged could scarcely date back more than a century or two. That I could get no information about it either from Abdulmalik or the men of Tikenlik was not surprising, considering the comparatively recent occupation both of this place and of Singer by people from other parts.

Signs of later occupation.

Before our first approach to the plateau at the mouth of the flood-bed we had already come upon potsherds, and had noticed an abundance of such 'Tati' debris when we crossed the tract of bare clay towards the ruined circumvallation, situated about half a mile to the south-west of it (Pl. 36). Most of the pottery fragments and other small objects of stone, metal, and glass picked up here and near the ruined fort, of which specimens are described under Ying. I. 04–17, II. 01–16 (Pl. CX), 019, looked to me old; but no definite indication as to date can be drawn from the few ornamented pieces. A Chinese coin which was picked up on the 'Tati' to the east of the circumvallation shows the legend *Wu-shu* used during Han times. About half-way across this 'Tati' there lies another small Muhammadan burial-place, already noticed by Dr. Hedin, with about twenty-three graves exactly resembling those above described. It may here be mentioned that when crossing the bare 'Tati' ground due east of the circumvallation on a subsequent visit, we noticed two roughly made wooden ploughshares closely resembling in shape those now used in oases of the Tārīm basin and also two stone hand-mills. The slanting rays of the setting sun showed up low narrow embankments, such as divide Turkestān fields for the purposes of irrigation, suggesting that this flat open ground had been under cultivation in comparatively recent times, while a Muhammadan colony reoccupied the site.

Ruined circumvallation.

The ruined circumvallation (Fig. 341) proved to be exactly circular, enclosing an area 194 yards in diameter within the inner foot of the rampart. This was built for the most part of stamped clay and irregular layers of tamarisk trunks and brushwood. But portions of it both to the south and north consisted only of stamped clay with a thick layer of matted tamarisk branches covering the top. I noticed no vertical posts or other timber bracing. The varying methods of construction which appeared to have been followed may, partly at least, be due to later repairs. The thickness of the rampart was about 24 feet at its base, and its height where fairly well preserved, as along a portion of the northern segment, over 18 feet. A thick layer of brushwood appears to have been used throughout to secure the top. There was found also an abundance of large stones, evidently intended for defence. The position of two gates to the west and east was marked by gaps about 30 feet wide exactly facing each other. Smaller openings on the north and south were manifestly mere breaches caused by minor branches of the flood-bed passing through the interior. The almost total absence of structural remains within the circumvallation can be accounted for by the periodical flooding to which the interior has evidently been subject since the site was abandoned. This would inevitably cause the rapid destruction of quarters built probably in most cases only of wattle and plaster. Only near the centre did I find debris of bricks and *kisek*, indicating the position of some structure. A live tamarisk-cone which had grown up over its remains appeared to have partially preserved them until recently. But they had been utterly disturbed by the same excavators who had been at work on the ruined shrine westwards to be presently mentioned. The ground within the little fort was covered with soft disintegrated clay. So it is scarcely surprising that the only object found here was the small silver pendant Ying. II. 05 (Pl. CX), having the shape of a ten-pointed star with five glass 'jewels' set round a central boss. The work has an appearance of antiquity.

That the walled enclosure is of pre-Muhammadan origin may be considered certain. Its

Date of circumvallation.

circular shape agrees with that of the ruined forts of Merdek, near the junction of Konche-daryā and Tārīm and of Ak-sipil near the Khotan oasis,[7] and as the former may with much probability be ascribed to Han times, there is ground for attributing an early origin similarly to the Ying-p'an fort; for it lies comparatively near to Merdek (Map No. 29. A. 4) and on the direct line connecting it and the Lop tract with Korla and the oases along the foot of the T'ien-shan. But that its occupation, whether continuous or intermittent, continued down to T'ang times may be safely assumed. The K'ai-yüan coin found near the Stūpa Ying. I is evidence of this; and it may be inferred with even more certainty from the fact that, as shown by our exploration of the watch-stations on the way from Ying-p'an to Korla, the high road which they guarded continued in use down to the T'ang period.[8]

Ruin of shrine Ying. II.

About 100 yards from the western gate of the circumvallation rises the conspicuous ruin of a shrine (Fig. 342) built of solid masonry. Everything about it showed that, apart from a cutting, probably old, made from the west to the centre of the Stūpa dome which forms the core of the structure, 'exploration', unfortunately of a rather ruthless sort, had again taken place in recent years. The men who rejoined us from Tikenlik attributed the digging done here and also at some graves to be mentioned presently to a 'Tura' who had come some years before with a party of labourers from Turfān and subsequently passed on 'into the desert'. Knowing that neither the German expeditions nor M. Pelliot's had come to the south of the Kuruk-tāgh, I am led to conclude that the visitor meant may, perhaps, have been Mr. Tachibana. Owing to the damage which the structural parts of the ruin had suffered in the course of a very summary clearing, it was difficult to secure quite exact measurements for the plan and section shown in Pl. 38. This, and still more the complete destruction of all sculptural remains of the shrine, is particularly to be regretted, because it evidently had presented some features different from those usually to be found in Buddhist sanctuaries of this region.

Remains of Stūpa and colossal statues.

A solid platform, measuring about 46 feet by 40 and 13 feet high, and built, like the rest of the structure, of bricks measuring 15" × 12" × 4", had carried in its centre a Stūpa. The original dimensions of this could no longer be determined with accuracy, owing to complete loss of the masonry facing. The diameter of the circular portion, which probably included a drum below the dome proper, measured approximately 17 feet. This rested on a base, about 23 feet square and close on 2 feet high, of which the projecting portion on each side appears to have been surmounted in the middle by a colossal stucco image. This sculptural adornment of the shrine was indicated by traces of plastered pedestals found here and there and by badly shattered fragments of coloured stucco found lying on the slopes of debris. Among them were pieces, apparently, of drapery, and a colossal head about 1½ feet high, now lacking all facial features. Judging from the width of the projecting part of the base, 3 feet 3 inches, the four colossal figures must have rested against the drum or dome of the Stūpa. That the figures were probably seated Buddhas may be concluded from the length of the pedestals, which apparently was close on 7 feet. Low remains of a square wall, only 14 inches thick, enclosing a narrow circumambulatory passage, were traceable on three sides of the base. In view of its weakness this wall could have carried only a wooden roof or veranda extending over the images, if there was any roof at all. Evidence of some wooden superstructure was found on the eastern side of the platform in the shape of some round posts of Toghrak wood projecting above the masonry. The effect of wind-erosion on the tops was very clearly marked, for the side facing to the north-east had been pared off and partly hollowed out, while the other side still retained the rounded outline and the complete diameter of over 7 inches. The platform here presented an open space about 15 feet wide in front of the Stūpa base, and there were traces

[7] Cf. *Ancient Khotan*, i. pp. 474 sq.; *Serindia*, i. pp. 452 sq.

[8] See below, p. 770.

of stairs that had led up to the platform from the east. It is hence very probable that this side of the platform once carried a kind of porch or antechapel, probably built of wood. As regards the general structural disposition of the shrine, the only comparison which suggests itself to me is with the ruined temple M. II at Mīrān which I cleared in 1907.[9] There, too, a high rectangular platform of solid brickwork was surmounted by a structure showing a high core of solid masonry. Though too badly damaged for its design to be determined with certainty, this superstructure may well have comprised a Stūpa dome with one or more colossal stucco images set up against its base or drum.

A reconnaissance made on the day following my first visit had shown me ancient graves scattered in groups along the edge of the Sai terrace stretching to the west of the Stūpa-crowned plateau, Ying. I (Pl. 36). The whole of this edge is cut up by small gullies due to erosion by drainage. About half a mile from Ying. I a wide branching flood-bed of the Shindī river has isolated a portion of it altogether and turned it into a separate small plateau rising island-like between two shallow channels. The graves found on the top of this were less likely to have suffered from damp brought down by surface drainage, and there our search was begun on the third day of our stay. On the west the foot of the plateau had been scoured by floods, and in consequence of this undercutting large planks and other pieces of Toghrak wood were found lying below, evidence that graves had been washed away here. The position of some others was indicated by rows of small rotten posts fixed in the ground, from eight to ten to each grave, at intervals of several feet. This arrangement was sufficient in itself to indicate that the origin of these graves was different from that of the graves at L.S. and L.T., explored lower down on the Kuruk-daryā. To the north of the graves here opened by us I noticed a space slightly sunk into the ground and bare of gravel. On clearing its western portion we laid bare first a thick layer of mixed reed and wheat-straw and then below it thick Toghrak beams fixed at right angles to a post. The natural gravel was reached at a depth of 3 feet without any clue having been found as to the character of the structure that probably once stood here. Possibly it may have served, like the half-underground wooden structure at L.H., to house coffins which have since been completely destroyed by erosion.

Ancient graves by plateau edge.

The grave first examined, Ying. III. 1, lay at the northern end of a row, by the side of a small drainage gully. It was found to contain the body of a man, apparently middle-aged. It was covered with a large hollowed-out trunk laid over a coffin of rough planks. The body was laid with the head to the east, an arrangement observed also in the other graves examined at this burial-place. Of the shroud, which appeared to have comprised both plain white silk and a woollen fabric, only very little survived. The head was less decayed than those of the bodies found in other graves, and was removed with its wrapping of woollen canvas for the purpose of expert comparison of its features with the heads from L.S. and L.T. Near the head was found the wooden cup Ying. III. i. 02–5, broken into several pieces, and a round wooden tray, badly perished, with bones of a sheep. Here, as in the other two graves found adjoining it on the south, excavation proved very troublesome owing to the rock-like consistency of the top layer of gravel and clay, which salt efflorescence had compacted into a kind of cement. About two feet of this layer had to be broken through, slow work in the absence of pickaxes, before softer soil was reached embedding the coffin.

Body in grave Ying. III. 1.

The southernmost grave of the row, Ying. III. 2, was found to contain a coffin of superior make and quite unusual size, 7½ feet long and 3 feet 2 inches across. Stout planks, 2 inches thick, joined by dowels, formed the covering lid, and the sides, equally strong, were braced together by transverse pieces. Within, two bodies were found side by side, much decayed indeed but undisturbed, and with all sepulchral deposits intact. The body on the left, or northern side, was recognizable as that

Coffin holding two bodies, Ying. III. 2.

[9] Cf. *Serindia*, i. pp. 485 sqq., Fig. 120; iii, Pl. 31.

of a man, that on the right as that of a woman, obviously the wife. Their heads, both grey-haired, were covered with pieces of plain silk, once white. The bodies were also wrapped in silks, both white and red, over shrouds of a coarse material, apparently woollen. On removing the outer silk cover the heads were found swathed in strips of white silk; these were secured by a crimson silk band, close on an inch wide, which was drawn over the forehead.[19] Over this band there lay in a row three small metal discs, apparently gold, Ying. III. 2. 03–8, which had been sewn to the head-band by means of two small holes in each. Below the woman's head was found an embroidered cloth of crescent shape, III. 2. 02 (Pl. XLV), made of buff canvas and doubled to form a kind of cushion cover. The embroidery work is executed in chain-stitch and shows highly stylized floral patterns together with birds and beetles. The mouths did not contain coins either in this or in any of the other graves.

Sepulchral deposits.

Above each of the heads was placed a wooden food-tray, III. 2. 017–18 (Pl. XXVIII), with the head and leg-bones of a lamb, the tray near the man's head being circular, the other elliptical. Alongside the bodies were found the remains of a bronze bowl, III. 2. 09 (Pl. CX), lined inside with lacquer over canvas, and of a lacquered bowl with graceful handle, III. 2. 010–14 (Pl. CX); the well-made wooden cup III. 2. 015 (Pl. CX); a pottery jug of coarse clay, III. 2. 016 (Pl. CX). All of these had probably held food-stuffs. Thick white felts had been spread below the bodies. There was nothing to indicate how the two bodies came to be buried in the same coffin. That they were those of husband and wife can scarcely be doubted. But did they follow each other in death about the same time, or was the coffin in which the first of the couple had been laid to rest kept unburied until it could receive also the second? The grey hair of both showed that they were an aged couple, and the provision of a common coffin might have been less strange in such a case.

Contents of grave Ying. III. 3.

The third grave opened, III. 3, lay between the two previously described. Here the covering planks of the coffin had decayed, and the contents had suffered more in consequence. The head was that of a bearded man, and the body was covered with white silk laid over a shroud of a coarse woollen fabric. A piece of silk covered the head, which was swathed with strips of white silk, just as the heads in III. 2. A narrow crimson band passed across the forehead, and on it were fastened three small discs, III. 3. 03–5, either gold or gilt. To the right of the head stood a tumbler of transparent greenish-white glass, III. 3. 06 (Pl. CX), found intact with traces at the bottom of some fluid which might have been wine or grape-juice. It is ornamented with bands of hollow-ground spots, and is of some interest as the only complete piece of glass ware found by me in the course of my explorations. Above the head lay the bones of a lamb deposited without a tray, and the small lacquered wooden vase III. 3. 07 (Pl. CX).

Less careful burials.

Other small groups of graves could be traced on the edge of the Sai terrace about half-way between those just described and the Stūpa-crowned plateau. Here water erosion had cut up the terrace edge into three narrow ridges; on the summit of each of these there were from two to six graves, marked by posts in the same fashion as noted at III. 1–3. In addition to these, a number of similar graves were to be found along the southern foot of the ridges and on the slopes of the small gullies dividing them. Debris of Toghrak wood washed down to the level ground at the foot afforded evidence that occasional flooding from the glacis above had destroyed other graves at this point. Among the dozen or so of graves on the top of the ridges which were likely to have suffered less by moisture, about half were found opened. They seemed to have contained only hollowed-out Toghrak trunks, not regular coffins, a circumstance pointing to less careful burials. This was confirmed by the contents of a grave, Ying. III. 4, excavated by us near the end of the

[19] For fragments of these, see Ying. III. 3. 01 in List.

easternmost ridge. We found in it the body of a woman laid out on a rough woollen mat (III. 4. 03 is a fragment of it) and covered by a hollowed-out trunk. The body, though poorly preserved, still retained parts of an upper garment of silk canvas edged with crimson silk, III. 4. 02, and remains of trousers of a strong woollen material, III. 4. 01. The head was wrapped round with strips of a fluffy material resembling cotton-wool: but there was no head-band nor any metal ornament. The feet were cased in coarse leather moccasins. The only sepulchral deposit traceable was a circular wooden tray of rough make with a lamb's head on it.

Peculiarity of burial customs.

This was the last of the graves opened by us at the site. Having regard to the time which the digging involved, with only a few men available for the work, and to the work still to be done in desert ground ahead, I did not consider myself justified in continuing an investigation which had already disclosed, on the one hand the poor preservation of the contents of the graves, and on the other the uniformity of the customs illustrated by them. In respect of these burial customs it is easier to recognize the difference between them and those previously observed, whether in the ancient Chinese graves of Lou-lan or in the indigenous graves of L.F., L.Q., L.S., and L.T., than to indicate definite evidence which would enable us to fix the approximate period and the race to which the occupants of these graves belonged. The use of miscellaneous rags of old clothing for wrapping up the dead, which forms so characteristic a feature of the remains of Chinese burials of Han times found at L.C. and L.H., was certainly not adopted here. At the same time the employment of silk fabrics for shrouds and the different character of the sepulchral deposits plainly show that the people here buried lived under the influence of Chinese civilization and were considerably advanced beyond the manner of life of those autochthonous Lou-lan people with whose remains we have become acquainted at L.F. and at other Lou-lan cemeteries of the same primitive type. Looking for analogies on other comparatively near ground, we certainly find the use of plain silks for shrouds, and of simple but complete garments beneath them, illustrated by a number of the Astāna burials in Turfān. But the regular face-cloths so common there are absent in the Ying-p'an graves, while of the swathing of the heads and of head-bands tied across the forehead no instance was met with at Astāna.

Suggested attribution of burials.

The indications gathered from these few, though in essentials uniform, burials of the Ying-p'an site may be insufficient in themselves for any safe conclusion. Yet no harm will be done by recording the impression they conveyed to me, purely conjectural as it is. Taking into account the fact that the graves are all orientated with the foot end to the west just as at L.S. and L.T., and that the rows of posts marking them on the surface may be derived from the solid stockades found above the graves of these indigenous burial-grounds, it occurred to me that the bodies buried at Ying-p'an may, perhaps, be those of local people settled around the old Chinese station at a period when prolonged contact with Chinese civilization had considerably modified their habits. It might thus be possible to account on the one hand for the adoption of certain Chinese customs not merely in the dress, &c., of the living but also in funeral equipment, and on the other for the maintenance of traditional arrangements in respect of the abode of the dead.

Approximate dating of graves.

But whether the above suggestion is accepted or not, it cannot help us much towards an approximate dating of the graves. The influence of Chinese civilization must have been strong and continuous in these parts from the first century B.C. onwards, and there is ample evidence, both in the Tārīm basin and in Turfān, that it outlasted the decline of China's direct political power in the 'Western Regions' which set in during the second century A.D. In the Lou-lan region, moreover, the existence of direct Chinese control down to the first half of the fourth century A.D. is attested by documents from L.A.[11] Thus, on general grounds, the graves might be attributed

[11] Cf. *Serindia*, i. pp. 408 sq.

to any period down to T'ang times during which a settlement was actually in existence at the site. Archaeological evidence as regards such late occupation is at present confined to the T'ang coin which, as previously mentioned, was discovered on the top of a refuse layer near the shrine Ying. I.[12] But we shall have occasion to see that there is further evidence of such continued occupation in a notice in Li Tao-yüan's commentary on the *Shui ching* composed in the first quarter of the sixth century. This notice bears directly on the identification of the site and will therefore best be discussed in connexion with a wider topographical question.

## LIST OF ANTIQUES FROM YING-P'AN SITE

### OBJECTS EXCAVATED FROM REFUSE HEAPS NEAR STŪPA YING. I

**Ying. a. 01. Wooden pen (?).** Stick, trimmed round and to blunt point (broken). Length 5¾", diam. 3/16".

**Ying. a. 02. Strip of goatskin,** with dark brown hair adhering. Remains of other strips neatly sewn to it on each side. Strip 3¾" × 2".

**Ying. a. 03. Misc. frs. of woollen fabrics;** buff and red, warp-rib weave of usual type; including hem from end of sleeve or top of bag to which fr. of crimson plain fabric is stitched. Gr. M. 6½".

**Ying. a. 04. Misc. frs. of fine woollen (?) fabric;** buff, warp-rib weave. Much worn. Gr. length 9¾".

**Ying. a. 05. Fr. of goat's-hair band,** made of three two-ply strips wrapped-turned on thinner string warp. Length 1' 2½", width ⅜".

**Ying. a. 06. Fr. of fine woollen fabric;** faded pink, plain weave. Gr. M. 4½".

**Ying. a. 07. Number of broken frs. of twigs** with bark on. Lengths ½" to 2", average diam. ⅛".

**Ying. a. 08–9. Two frs. of wooden sticks,** split longitudinally; each cut off at one end, broken at other. *08* peeled and smoothed, with streak of fine black lacquer down one side; *09* lacquered black. Length of each 4½", diam. ¼".

**Ying. a. 010. Fr. of wooden stick;** flat, oblong, broken one end, cut at other, one face smoothed. 2" × ⅞" × ¼".

**Ying. a. 011–12. Two frs. of wooden twigs,** split longitudinally; *011* broken at ends, *012* cut. Bark stripped off. Lengths 6½" and 9½", diam. ¼" and ⅜".

**Ying. a. 013. Fr. of vegetable fibre rope,** two strands. Lengths 9¾", thickness ⅜".

**Ying. I. a. 1–4. Shavings from Khar. wooden document;** apparently cut when doc. was being erased for use anew. *1–3* join, showing part of one l. large Khar. chars., and remains of another group above; *4* consists of the merest scraps too small to show where they belong. *1–3* (joined), 4⅜" × 2½".

**Ying. I. a. 01. Wooden cleat.** Bark left on back. 1 5/16" × ⅜" × ⅜".

**Ying. I. a. 02. Fr. of lacquered wood;** flat strip, broken at one end. One edge chamfered. Lacquered mostly red over black; red perished, exposing black ⅛" from broken end. 1 7/16" × 7/16" × 3/16".

**Ying. I. a. 03. Fr. of wood;** flat strip, fairly smooth on faces. 2⅝" × 1" × ⅜".

**Ying. I. a. 04. Wooden peg,** round in section at top, and cut wedge shape in long slope towards other end. Length 2¼", diam. 7/16".

**Ying. I. a. 05. Fr. of leather;** buff, hard. 2⅜" × 2¼".

**Ying. I. a. 06. Fr. of woollen fabric;** buff, plain weave. Gr. length 9".

**Ying. I. a. 07. Fr. of woollen fabric;** plain weave, dark salmon pink. Gr. M. 3½".

**Ying. I. a. 08. Band of fine woollen (?) fabric;** tubular, one half (longitudinally) yellow, one red. Loose plain weave. 11½" × 1".

**Ying. I. a. 09. Strip of leather;** soft, buff, irregular width. 9¼" × 5/16" to ⅝".

**Ying. I. a. 010. Cutting of leather;** light yellowish, rather hard. 6" × ¾".

**Ying. I. a. 011. Fr. of coarse woollen fabric.** Dark brown, herring-bone weave. Length 7".

**Ying. I. a. 012. Scraps of goat's-hair string.** One piece made of two strands, each made of a buff and a dark brown thread twisted together. Length 7¼", diam. 3/16".

**Ying. I. a. 013. Fr. of thin woollen (?) fabric;** faded salmon-pink; loose plain weave. Gr. M. 4½".

**Ying. I. a. 014. Three frs. of vine-stem.** Gr. length 4".

**Ying. I. a. 015. Fr. of strong woollen pile fabric;** very strong warp-rib weave, with the rows of pile tufts about every tenth sheet of weft. Dirty buff. 7½" × 6½".

**Ying. I. a. 016. Fr. of very thick goat's-hair fabric;** yellow, perhaps for rug; as *Ser.* iv. Pl. XLVIII, T. XIV. 004. Gr. M. 1".

**Ying. I. a. 017. Fr. of woollen fabric;** salmon faded to grey; warp-rib weave. Also bit of unspun grey wool. Fabric (gr. M.) 2½".

**Ying. I. a. 018. a–b. Two frs. of fine woollen fabric;** faded salmon pink. *a*, loose plain weave; *b*, close warp-

[12] See above, ii. p. 751.

rib weave, made of strong twisted warp and soft fine weft. Gr. M. 5".

**Ying. I. a. 019. Fr. of woollen fabric;** buff; strong warp-rib weave; very dirty. Length 8¼".

**Ying. I. a. 020. Mass of twisted woollen yarn;** fine yellowish. 2¼" × 1¼" (in mass).

**Ying. I. a. 021. Strip of woollen fabric;** yellowish buff; warp-rib weave, with strong twisted warp and soft flat weft much perished in places. 6¼" × 1⅜".

**Ying. I. b. 01. Bundle of grass,** folded up in mass. 4" × 5" × 2".

**Ying. I. b. 02. Specimen of wheat-straw.**

**Ying. c. 01. Fr. of pottery,** from large vessel, hand-made. Red inside, grey out. 7" × 7½", thickness 5/16".

**Ying. c. 02. Fr. of pottery;** grey, hand-made. Gr. M. 4⅜", thickness ¼".

**Ying. c. 03. Half of small pottery bowl;** red, hand-made, with flat bottom. Roughly pinched into shape with thumb and finger. H. 1 3/16", diam. of top 2⅝", of bottom 2".

**Ying. c. 04. Fr. of twig rope;** two bunches of small twigs twisted on each other. Length 9", thickness ¾".

OBJECTS FOUND ON 'TATI' TO EAST AND SOUTH-WEST OF YING. I

**Ying. I. 04. Fr. of stone:** hollow tubular, slightly bulbous at ends. Two or three small holes also occur irregularly through side. Surface rough. Length 2½", diam. ¾" to 1¼".

**Ying. I. 06. Fr. of pottery,** from wall of vessel. Wheel-made, brown-grey, with horizontal reeding on outside. Gr. M. 1 7/16", thickness 3/16".

**Ying. I. 07. Fr. of pottery;** blackish-grey, faintly reeded horizontally. Gr. M. 2¾", thickness ¼".

**Ying. I. 08. Fr. of upper part of pottery jar,** showing shoulder, short neck, and everted rim thickening towards edge, which is cut off at downward angle to outside. Coarse purplish-grey body covered on outer side with finer clay slip, burnt red, on which orn. is produced by sgraffito method.

Orn. preserved consists of row of circular spots round smallest part of neck, with wavy line scratched lightly in the red slip above, and straight line below. On shoulder are traces of similar circles, but much of intervening surface has cracked off and design has consequently been lost. H. 3", width 2½", thickness ¼". Pl. CX.

**Ying. I. 09. Fr. of pottery** from neck and rim of vessel. Common red ware. Rim slightly everted, wide and flat on top. Gr. M. 2½", thickness 5/16".

**Ying. I. 010–13. Four pottery spinning whorls,** made from potsherds of common red ware, chipped round and pierced. Gr. diam. (*010*) 1⅜".

**Ying. I. 014. Fr. of bronze (?) slag.** Gr. M. ¾".

**Ying. I. 015. Fr. of pottery;** red, with incised orn. on outside: annular line, and double chevron band below. Remains of pinkish slip in lines (?). Gr. M. 1⅝", thickness ¼". Pl. CX.

**Ying. I. 016–17. Two frs. of pottery crucible (?).** Body partially disintegrated; surface covered with the material melted in the crucible; prob. a green glaze used on pottery and made from copper oxide as colouring agent. Gr. M. 2¼", thickness, ¼" to ⅜".

OBJECTS FOUND ON 'TATI' NEAR RUINED CIRCUMVALLATION YING II

**Ying. II. 01–2. Two frs. of pottery,** now joined, from wall of vessel. Pinkish red, with buff slip outside. Roughly scratched on outer surface, a bird or other animal partly missing. Broken on all sides. 7⅞" × 5¼" × ⅜".

**Ying. II. 03. Fr. of pottery,** from wall (?) of vessel. Grey, rather coarse and spongy. 2¼" × 2⅜" × ⅜".

**Ying. II. 05. Silver pendant** (found near centre of circumvallation) in form of ten-pointed star, the point at top forming loop for suspension. Raised centre set in circular rosette fashion, with five white glass 'jewels' surrounding central glass boss. Much corroded and sand-encrusted. Diam. 1¼", thickness 3/16". Pl. CX.

**Ying. II. 06. Fr. of pottery,** red with cream-coloured slip on outer face. Prob. belonging to Ying. II. 01–2. Gr. M. 4¼", thickness 3/16".

**Ying. II. 07. Fr. of pottery,** from bottom of vessel. Red, surface broken away. Gr. M. 2", diam. of base 1¼".

**Ying. II. 08. Fr. of pottery;** coarse red. Gr. M. 1⅞", thickness ⅜".

**Ying. II. 09. Fr. of pottery;** dull red, grey on faces. Faintly ribbed. Gr. M. 2¼", thickness ¼".

**Ying. II. 010. Fr. of pottery;** grey, fairly fine. Gr. M. 2⅜", thickness ¼".

**Ying. II. 011–16. Six frs. of pottery;** fine red, some showing remains of cream slip. Prob. belonging to Ying. II. 01–2 and 06. Gr. M. 2".

**Ying. II. 019. Fr. of glass bead;** blue, spherical, apparently with channelled sides. Diam. ⅜".

OBJECTS EXCAVATED FROM GRAVES OF YING-P'AN BURIAL-GROUND

**Ying. III. I. 01. Human skull,** with remains of head-wrapping of woollen canvas. Good condition. Nine teeth preserved in upper jaw, eight in lower. Chin to crown c. 7¼".

**Ying. III. 1. 02–5. Five frs. of wooden cup** with handle; same pattern as Ying. III. 2. 015, Pl. CX. Wood soft and perished. Gr. fr. 3⅛″ × 2¼″.

**Ying. III. 1. 06. Fr. of wood** (decayed), from tray; shows sloping rim. 4½″ × 1½″.

**Ying. III. 2. 02. Embroidered cloth,** crescent-shaped, double, forming a sort of cushion cover, of closely woven buff canvas; embroidered sparsely with highly stylized floral patterns and birds in chain-stitch. At points of horns are plain crimson silk squares, attached by centre.

At each horn is embroidered a kind of vase from which grows a fern-like plant bearing pear-shaped buds and six-petalled flowers. Attenuated cranes and modified beetles fly in various directions. Colours yellow, red, blue, and green. Much faded. Canvas roughly patched in antiquity and perished in places since burial. 21″ × 9″. Pl. XLV.

**Ying. III. 2. 03–5. Remains of three metal discs,** from head-band of R. body. Thin, very fragile, pierced with two holes through which passed thread sewing them to band. Gold or gilt (?). Scraps of silk adhere. Broken. For others, see Ying. III. 2. 06–8 (Pl. XLV), 3. 03–5. Gr. diam. when complete ⅞″.

**Ying. III. 2. 06–8. Three metal discs** from head-band of L. body; as preceding. Gold (?), very thin. *08* was double, and has split apart. Diam. (06 and 07) ⅞″.

**Ying. III. 2. 09. Remains of bronze bowl,** badly corroded. Round, flat-bottomed; lined with lacquer over canvas, which is held to bronze by bronze rivets passing through from outside and secured by washers on inside. Lining, however, perished. Arc of rim 4¼″, H. 1¼″. Pl. CX.

**Ying. III. 2. 010. Remains of lacquered bowl,** much decayed; round, flat-bottomed. Made of two thicknesses of canvas, with strip of cane to stiffen rim. Lacquer inside dark red, with black round rim; outside black, with band of dark red just below rim, much cracked. Break at edge bound over with strip of iron fixed with bronze rivet. For handle, see Ying. III. 2. 014. Arc of rim, 5½″, h. 2″. Pl. CX.

**Ying. III. 2. 011. Fr. of woollen (?) canvas;** natural buff; soft, plain weave. 9¾″ × 3½″.

**Ying. III. 2. 012. Fr. of felt;** loose, yellowish. 3½″ × 1½″.

**Ying. III. 2. 013. Fr. of silk fabric;** red, plain weave. Brittle. Gr. M. 5″.

**Ying. III. 2. 014. Lacquered wooden handle,** apparently belonging to bowl Ying. III. 2. 010 (Pl. CX). Upright stem, flat on inside, rounded on outside with round chamfer to meet flat inner surface, and tapering towards top where it curves over gracefully to make hook for finger. End finished in point. Lacquered black over red with some red exposed at upper end. Below, remains of side of bowl, with bronze bands and rivets attaching handle at same. H. of whole 3¾″, gr. width of handle 1″.

**Ying. III. 2. 015. Wooden cup,** with straight projecting handle cut in one piece. Cup circular, expanding from flat base to low shoulder, like bowl, and thence drawing in to plain rim in concave curve. Groove lightly incised on outside immediately below rim, and above base. Handle straight, stick-like, sq. in section, 1½″ long, projecting from shoulder at angle of 45°; with thickening of underside through which is bored hole for suspension string. Well made, and in good condition except for piece broken out of one edge. H. 2⅝″; diam. of shoulder 4½″, of mouth 3⅝″, of base 2 1⁄16″. Pl. CX.

**Ying. III. 2. 016. Pottery jug,** hand-made, with loop handle on shoulder. Coarse red, with flat bottom, ovoid body, and short neck turning out to plain rim bevelled towards outside. Round shoulder run double incised chevron lines, intersecting so as to form series of lozenges. Good condition, but surface flaked in places. Badly fired. H. 7¾″; diam. of shoulder 7″, of mouth 4″, of bottom 5″. Pl. CX.

**Ying. III. 2. 017. Wooden food-tray;** circular, partly lathe-turned, flat-bottomed, and with flat rim 1¼″ wide. Centre hollowed out to depth of about ½″. Outside bevelled inwards to flat base. Rim cracked at two points opposite each other, and repaired by inch-long double dovetail strips of wood laid across crack and fixed with dowels. Discoloration on inside from food. Knife scorings on bottom. Diam. of upper side 1′ 4″, of bottom 1′ 1½″; H. 1¾″. Pl. XXVIII.

**Ying. III. 2. 018. Wooden food-tray with leg-bones of animal.** Tray elliptical, with slightly raised rim, and four circular 'feet' below cut in the solid and almost flush with its under-surface, which is scored with knife-cuts. Tray originally painted black inside.

Somewhat warped and cracked; cracks repaired in antiquity, the iron rivets which held the repairing strips still remaining. Edges worn smooth by abrasion. Bones appear to be shoulder and leg-bones of lamb (?). Fr. of silk fabric under bones. Tray 1′ 5½″ × 1′ 3″. H. before warping about 1¼″. Pl. XXVIII.

**Ying. III. 3. 01. Frs. of silk head-bands** (partly from Ying. III. 2); rich crimson, loosely woven in plain weave. Long edges joined edge to edge to form tube. One fr. knotted to another. Three frs. in all. Length of two longest pieces placed end to end 20″. Width 1⅜″.

Also two round knobs of canvas covered with silk with a stalk-like extension on each; buttons (?). Length 1¾″, diam. of knob ½″.

**Ying. III. 3. 02. Frs. of silk shroud;** buff, plain weave. Discoloured. 9″ × 6″.

**Ying. III. 3. 03–5. Three metal discs,** apparently gold, from head-band, as Ying. III. 2. 03–8. Diam. ⅞″ to ½″.

**Ying. III. 3. 06. Glass tumbler;** transparent greenish-white, with small flat bottom, and sides expanding in slightly convex curve to plain thickened rim. Orn. with bands of hollow-ground spots; seven circular round side immediately above ground, and two bands of ellipses above.

Complete, but broken and now mended. H. 2¼"; diam. of bottom ⅞", of mouth 2 13/16". Pl. CX.

**Ying. III. 3. 07. Lacquered wooden vase**; with plain mouth, and straight sides rising from echinus-shaped body, 1⅝" to 1¾" from foot, which is only slightly raised. Interior also expands towards bottom following line of surface. Remains of red lacquer outside on straight part with traces of pattern in black lines and spots. Black on echinus. Rim uneven and much worn. H. 3⅝"; gr. diam. 3½"; diam. of base 2¼", of mouth 3½". Pl. CX.

**Ying. III. 4. 01. Fr. of woollen material**, strongly woven with slight rib; from trousers. Buff, discoloured and torn. 7¼" × 11½".

**Ying. III. 4. 02. Fr. of fine silk canvas**, from coat edge, crimson strip with yellow of same material attached at one edge. Material resembles modern bunting but is probably silk. Remains of yellow silk piping on other edges, to which is sewn dark buff silk. At one end of yellow canvas is sewn a piece of soft crimson silk similar to Ying. III. 3. 01. 3' 10" × 7".

**Ying. III. 4. 03. Fr. of woollen mat**, woven with goat's-hair warp. Weft is passed round bundle of warp threads at edge, and then woven in the manner of 'paring' in basket-work, giving the appearance of string laid in parallel rows joined together by the widely spaced warp. 7¼" × 7".

## Section II.—THE ANCIENT COURSE OF THE KONCHE-DARYĀ AND THE 'TOWN OF CHU-PIN'

Interest of Ying-p'an site.

My reason for visiting Ying-p'an, even more than the interest which the ruins of the site might offer, was the wish to examine on the spot a wider question of both geographical and antiquarian importance connected with the Kuruk-daryā. I have had occasion, both in *Serindia* and in the present work, when discussing the remains of the ancient settlement marked by the ruins of the Lou-lan area and the old Chinese high road once passing through it, to point out more than once the essential fact that it was solely the water once brought to this area by the Kuruk-daryā which had rendered it capable of occupation or even of being merely traversed by traffic. Our surveys of 1906 and 1914, supplemented by Afrāz-gul's observations on the tour from which he had just rejoined me, had furnished clear evidence of the extensive ancient delta formed by the Kuruk-daryā both to the south and east of the main Lou-lan site, during the prolonged period when it carried water. They had also shown that all these successive branches of the river had found their termination in marshes, long ago dried up like the salt-encrusted bed of the prehistoric Lop Sea which these marshes had fringed along its western edge.

Connexion of 'Dry River' with the Konche-daryā.

At the same time a variety of considerations had led me to conclude that the Kuruk-daryā had derived its supply of water principally from the Konche-daryā, a considerable river, of which, as the surveys of previous explorers showed, the now dry bed of the Kuruk-daryā seemed to form a direct continuation eastwards. To Colonel Kozlov belongs the merit of having on the one hand recognized that the marsh-filled bed crossed by the Lop–Turfān route at Ying-p'an formed part of the head of the Kuruk-daryā, and on the other of having shown by his mapping of 1893 that the actual bed of the Konche-daryā passes within a comparatively short distance of Ying-p'an. Dr. Hedin's explorations of 1896 had fully confirmed these observations and furnished much valuable information about the Konche-daryā farther down. But the ground intervening between it and Ying-p'an had not been seen by any European explorer except along the Ying-p'an–Tikenlik track leading to the south-west, and there the old connexion between the Konche-daryā and the head of the 'Dry River' at Ying-p'an could obviously not have lain, as will appear on reference to the map (No. 25. C, D. 3).

Hydrographic notices of Li Tao-yüan.

An examination of this region appeared to me all the more important on account of the theory that Dr. Hedin had put forward, after his explorations of 1900–1, as a solution of the so-called 'Lop-nōr problem'.[1] According to this theory, set forth with much ingenuity and learning, the Kuruk-daryā was supposed to have carried the whole drainage of the Tārīm, including that of the Konche-daryā as an affluent, into the 'old Lop-nōr' lake located by him south of the Lou-lan

[1] See Hedin, *Central Asia*, ii. pp. 257 sq.

site, until the Tārīm's diversion into its present course in comparatively modern times. This theory could not be reconciled either with what our surveys had shown of the well-defined delta of the Kuruk-daryā traceable over a considerable area to the south and east of the Lou-lan site, or, what seemed even more significant, with early and definite data regarding the hydrography of this region furnished by an important Chinese record, not accessible to Dr. Hedin when his theory was formed. I mean the very interesting account which M. Chavannes has extracted and translated from Li Tao-yüan's commentary on the *Shui ching* in the 'Note additionnelle' to his masterly analysis of the *Wei lio's* notice of the 'Western countries'.[2] I have fully discussed in *Serindia* the statements contained in Li Tao-yüan's work, which was composed some time not later than A. D. 527, the date of the author's death, but undoubtedly embodies much information relating to earlier periods of Chinese relations with the Tārīm basin.[3] A brief review, however, of those statements which have a direct bearing on the question of the Kuruk-daryā and its connexion with the Konche-daryā appears necessary here, all the more that they also help to throw light on the ruined site described in the preceding section.

Li Tao-yüan's 'River of the South'.

With regard to the passage which interests us here it has to be noted that it follows an account which has been left untranslated by M. Chavannes, but which, according to a note furnished by him, treats of the 'River of the North', i. e. of the rivers of Kāshgar and Yārkand. Preceding that account we have in the commentary a long and interesting description of the course of the 'River of the South', i. e. of the river of Khotan, which in its terminal portion is said to unite itself with the river of Charchan and then flowing eastwards to pass north of Shan-shan into 'the lake of Lao-lan'. When discussing this description at length in *Serindia*,[4] I believe that I have conclusively shown that by this terminal course of the 'River of the South' Li Tao-yüan means a course approximately corresponding to that of the present Tārīm, where it flows south to be joined by the Charchan-daryā and then passes north of Mīrān, 'the old eastern capital' of the kingdom of Shan-shan, into the marshes of Kara-koshun or, to use their modern Chinese, or more correctly Mongol, designation, into the present Lop-nōr.

Passage of 'River of the North'.

The passage with which we are here concerned runs as follows:[5] 'The waters of the *Ho* 河 [i. e. the River of the North] move farther east and pass to the south of the kingdom of *Mo-shan* 墨山. [This kingdom] has for its capital the town of *Mo-shan*; on the west it is 240 *li* from *Wei-li* 尉犂. The waters of the *Ho* move farther east and pass to the south of the town of *Chu-pin* 注賓; farther east they pass south of the town of *Lou-lan* 樓蘭 and then run off eastwards. This is, no doubt, the place where the colony of soldiers sent to clear the fields [for cultivation] was established, and this is why the town inherited the name of the kingdom. The waters of the Ho proceed farther east, to empty themselves in the *Yu* marshes 泑澤, which are those called by the [*Shui*] *ching* the *P'u-ch'ang* lake 蒲昌海. The water accumulates in the north-east of Shan-shan and in the south-west of the Town of the Dragon.'

Course of Konche-daryā described.

The latter portion of this passage has already been fully analysed above. It has been shown there that it quite correctly describes the course taken by the river now represented by the beds of the Kuruk-daryā, as they pass from Ying-p'an south of the Lou-lan site and thence to the dried-up marshes eastwards fringing the salt-encrusted bed of the ancient Lop Sea.[6] With regard to the preceding portion it is easy to show that, as already briefly stated in *Serindia*, the topographical indications take us necessarily to the ground along the foot of the glacis of the western Kuruk-tāgh now skirted by the Konche-daryā. We have seen before that the 'kingdom of Mo-shan', the

[2] See Chavannes, *T'oung-pao*, 1905, pp. 563 sqq.

[3] Cf. *Serindia*, i. pp. 324 sqq., 419 sqq.

[4] Cf. *ibid.*, i. pp. 325 sqq.

[5] See Chavannes, *T'oung-pao*, 1905, p. 570.

[6] Cf. above, pp. 293 sq.; also *Serindia*, i. pp. 420 sqq.

identity of which with the territory of *Shan* 山 of the Han Annals has been rightly recognized by M. Chavannes, as well as by the Chinese antiquarian Hsü Sung, can with complete certainty be located in the western Kuruk-tāgh.[7] Of the territory of *Wei-li* which lay 240 *li* to the west of the 'capital' of Mo-shan, it has been shown that it corresponds with equal clearness to the tract south of Korla which is irrigated by canals from the Konche-daryā and is now known from its recent administrative head-quarters as Kara-kum or Konche (Map No. 25. A. 1, 2).[8] The map will show that Li Tao-yüan, or rather the source from which his information was gathered, when referring to a river-course which passed south of *Mo-shan*, i.e. the western Kuruk-tāgh, and continuing to the east passed south of the 'town of Chu-pin' towards Lou-lan, must allude in the first place to the Konche-daryā; for this skirts all along the foot of the western Kuruk-tāgh, and, in respect of that portion of its actual course which extends from Sai-cheke (Map No. 25. B. 2) down to the vicinity of the ruined watch-station Kurghān to be described farther on (Map No. 25. C. 2), lies in the direct continuation of the line of the Kuruk-daryā.[9] And that a direct connexion once existed between the portion of the Konche-daryā course just mentioned and the Kuruk-daryā at Ying-p'an was conclusively proved by the dry river-beds we subsequently found south of Kurghān bearing in the direction of Ying-p'an.

Volume of Konche-daryā.

The Konche-daryā, which now from above Kurghān takes a more southerly course, approaching branches of the Tārīm east of Tikenlik and ultimately being absorbed by it, is by itself a considerable river. It carries the whole of the drainage which the Kara-shahr valley receives from the high T'ien-shan range and its well-watered plateaus of Yulduz, after the Baghrash lake has helped to store it, particularly at the time of the melting snows. Owing to the effect of the big reservoir thus created, the volume of the Konche-daryā is far less affected by seasonal variations than that of any of the rivers flowing into the Tārīm basin. This point, which has already been duly noted by Dr. Hedin,[10] must necessarily add to the value possessed by the water-supply of the Konche-daryā, wherever local conditions would permit it to be used for purposes of irrigation. The large volume of this supply is well attested by available measurements.[11] Hence we might well be inclined to assume that the water brought down by the Konche-daryā, when it flowed in what is now the dry bed of the Kuruk-daryā, would by itself have sufficed for maintaining such cultivation as once existed at its ancient deltaic termination around the Lou-lan site.

Konche-daryā interlacing with Tārīm branches.

But two considerations must warn us against drawing this conclusion too hastily. One is an obvious consequence of the fact that in an area where the differences of level are so slight as they are in the whole of this riverine belt of the Lop region, frequent and extensive changes in the river-courses are bound to occur. Therefore, just as we now find the Konche-daryā interlacing

[7] See above, p. 292 sq.

[8] See *Serindia*, iii. p. 1231; below, p. 777.

[9] The view here expressed as regards the direct connexion between the Konche-daryā and the Kuruk-daryā had been rightly indicated already by Colonel Kozlov in a passage of his paper on 'Lob-nor' in the *Journal of the Russian Geographical Society*, 1898, xxxiv, p. 112, as quoted by Hedin, *Reisen in Z.-A.*, p. 74.

Colonel Kozlov was the first explorer who, in 1893, actually touched the Kuruk-daryā at two places south of Āltmish-bulak and again at Ying-p'an. The passage quoted shows that he fully appreciated the true significance of his discovery.

[10] Cf. Hedin, *Reisen in Z.-A.*, p. 69.

[11] Dr. Hedin on March 11 observed a discharge of nearly 72 cubic metres or about 2,530 cubic feet per second at the bridge of Korla, and rightly called attention to the notable fact that the level of the river undergoes practically no change even at the time when the ice melts. It is significant that on March 27 he found almost the same volume, viz. 69 cubic metres per second, at Turfān-karaul or Konche-örtang (Map No. 25. C. 3); cf. *ibid.*, p. 77. I myself measured a discharge of about 1,890 cubic feet per second on March 28 at the ferry near Karakum. This was the season when the first spring irrigation absorbed much water in the oases about Korla.

It deserves to be noted also that the Konche-daryā, flowing throughout in a deep-cut single main bed, is unfordable all the way from Korla to below Tikenlik.

its course with branches of the Tārīm below Tikenlik,[12] so the river, in that earlier period when it extended towards Lou-lan along the line marked by the present Kuruk-daryā, may well have been joined higher up by beds passing towards it from the Yārkand river and from the latter's important northern affluent, the Inchike-daryā or river of Shahyār. There are even now indications of such interlacing between these river systems in the area marked in the north by Chong-kōl (Map No. 25. A. 2) and by Yangi-kōl on the Yārkand-daryā (Map No. 25. B. 3).[13] If the Konche-daryā above Ying-p'an received such a contribution from the Inchike–Yārkand-daryā system it would be still easier to account for the great extent of the ground covered by its ancient delta about Lou-lan.

Likelihood of ancient connexion with Tārīm.

The other consideration, which distinctly favours the view just indicated, is supplied by Li Tao-yüan's account itself. Schematic as the Chinese description reproduced by him of the hydrography of the Tārīm basin evidently is, it would scarcely have been possible for it to treat the river-course extending to Lou-lan along the line marked by the Kuruk-daryā as forming part of the 'River of the North',[14] i. e. the united rivers of Kāshgar and Yārkand, if its waters had been solely derived from the Konche-daryā; for this has quite a distinct origin and comes from the opposite end of the Tārīm basin. If, however, the Konche-daryā, while it followed the straight continuation of its bed leading in the direction of Lou-lan, also received a contribution to its volume from the side of the drainage that is now wholly gathered into the terminal Tārīm, the generalization underlying the Chinese description of the river system becomes quite intelligible. It would be impossible now, after so many centuries of riverine changes, to determine where was situated this connexion between the Konche-daryā and the wholly distinct river system represented by the lower Yārkand-daryā and its tributary from the direction of Shahyār and Kuchā. Nor would even conjectures on the point be justified so long as we have no exact survey of the whole of this Mesopotamia.

An attempt to trace the probable course or courses of the Konche-daryā above Ying-p'an during the early historical period when its water flowed in the Kuruk-daryā bed towards Lou-lan is, naturally, not open to the same objection. Before, however, considering what light our actual survey of the region may throw on the question, I must recur to a particular point raised by Li Tao-yüan's above-quoted account which has a direct antiquarian bearing. I mean the reference to the 'town of Chu-pin' south of which the 'River of the North' is said to pass, after flowing past the

[12] Cf. Hedin, *Reisen in Z.-A.*, pp. 78 sqq., with Dr. Hassenstein's map illustrating his observations.

[13] The Russian map, based here probably on Przevalsky's surveys, marks a connexion between the Inchike-daryā and the Konche-daryā to the south of Kara-kum and again from the side of the Chong-kōl lagoons which are fed by the Inchike-daryā. Afrāz-gul's mapping, too, shows a channel passing from the Chong-kōl eastwards in the direction of the Konche-daryā. His route report also records that he heard at Ulūgh-kōl, on the Tikenlik–Korla road, of a bed passing from the Inchike-daryā to the Konche-daryā which recently supplied water for irrigation at Ulūgh-kōl.

Whether this channel has any relation to the old river branch which Dr. Hedin's mapping of 1900 between Yangi-kōl and Dilpār shows as having carried water from the side of the Yārkand-daryā to the Konche-daryā ten years before, I am unable to say. Owing to the want of a Loplik guide on our march from Ying-p'an to Kara-kum, I was unable to make inquiries about this portion of the Konche-daryā, and the necessity of visiting the ruined watch-stations on the old route kept us at most points too far away from the river for useful observations. The whole of this Mesopotamia is inevitably liable to considerable changes, and away from the main river-beds still awaits systematic survey.

[14] That by the 'River of the North' the united Yārkand and Kāshgar rivers are meant is certain; for the *Shui ching* itself, in the passage upon which Li Tao-yüan comments, speaks of this river as the 'Ho (river) of the Ts'ung-ling' 葱嶺河, *Ts'ung-ling* being the Chinese designation of the meridional range dividing the Pāmīrs and Oxus drainage from the basin of the Tārīm.

A complete translation by a competent Sinologist of Li Tao-yüan's account relating to the 'River of the North' would manifestly be of considerable interest to geographical and antiquarian students alike. This interest is not seriously impaired by the obviously schematic treatment of the subject, sufficiently illustrated by the distinction between the 'rivers of the North and South' and by the retention of the early Chinese belief, as expressed in the text of the *Shui ching*, that made the waters of the Tārīm come to light again in the Huang-ho; cf. Richthofen, *China*, i. p. 226.

'kingdom of Mo-shan', i. e. the western Kuruk-tāgh, and before continuing its eastward course to the 'town of Lou-lan'.

Li Tao-yüan's 'town of *Chu-pin*'.

I have already, in *Serindia*, briefly expressed the belief that by the 'town of Chu-pin' is probably meant the locality marked by the ruins of the Ying-p'an site. In support of this identification, I would call attention in the first place to the natural advantages offered by the site for a settlement of some importance, especially during the period when the ancient high road from Lou-lan towards Korla and the string of northern oases passed along the Kuruk-daryā. We shall see that the line followed by this high road is marked beyond all doubt by the line of massive watch-towers which extends from Ying-p'an north-westwards to the vicinity of Korla. Archaeological evidence enables us to assign these to Former Han times, the very period when the road passing through Lou-lan possessed its greatest importance. The route, which can still be traced by the line of these ruined watch-stations for a distance of about ninety miles, led along the extreme foot of the Kuruk-tāgh glacis. It was thus protected from those difficulties of communication to which periodical inundations and changing river-courses inevitably give rise in the riverine belt below the glacis edge, difficulties such as the present track from Kara-kum to Charkhlik is constantly exposed to during the flood season and the early autumn. At the same time the old course of the Konche-daryā lay sufficiently near to this route to ensure easy access to water.

Road junction at Ying-p'an.

The traffic passing north-westwards from the oases of ancient Shan-shan, i. e. from the side of the present Charkhlik and from the adjoining riverine tract of Lop, found obvious advantage in gaining this safe ground, which was practicable at all seasons. Reference to the map will show that Ying-p'an was the nearest point where it could be reached by those coming from the south and south-east. The Ying-p'an site may thus with great probability be considered as the point of junction of the ancient 'route of the centre' coming from Lou-lan and a transverse road which connected it with the oases along the ancient 'route of the south', Shan-shan (Lop), Chü-mo (Charchan), &c., and which probably passed close to the ruined fort of Merdek.[15] The importance of the Ying-p'an site as a road junction must have been further enhanced by the fact that the most direct route connecting the whole of the Lop area with Turfān also led through it, then as now.[16] It is easy, moreover, to realize the benefit that all traffic passing these cross-roads at the foot of the barren Kuruk-tāgh derived from the fact that just here the physical conditions were such as to permit of cultivation, restricted to narrow limits, perhaps, but yet permanent.

Cultivation possible at Ying-p'an.

I have had frequent occasion to point out how difficult it is throughout the Tārīm basin to maintain irrigation along the river-courses, except below the point where they debouch from the mountains or else in 'terminal oases' before they lose themselves in the sands, owing to the vagaries of the beds, the damage caused by floods to canal heads, &c. Now Ying-p'an is the only point where the Konche-daryā and its continuation, the Kuruk-daryā, are joined by a stream large enough even now at times to carry an appreciable volume of water across the thirsty Sai down to the riverine belt. That this is the case with the river of Shindī is sufficiently proved by the lagoons and the freshwater springs along their sides which are to be found here in the bed of the Kuruk-daryā; for these are fed solely by the floods periodically descending from the Shindī valley. That this water-supply could even in comparatively modern times be utilized for cultivation is proved by the remains of a late Muhammadan settlement described above. The fact that this amount of water is available in the river of Shindī, whereas it cannot be found in any of the other beds

[15] Regarding the Merdek site, cf. *Serindia*, i. pp. 452 sqq.; for the 'route of the south' leading to Shan-shan and thence along the oases at the foot of the K'un-lun, cf. *ibid.*, i. p. 418.

[16] We have probably an indirect reference to the use of this transverse route, from Shan-shan passing through Ying-p'an towards Turfān, in a notice concerning a campaign of Pan Yung in A. D. 124; see *ibid.*, i. p. 333.

descending from the Kuruk-tāgh to the south, is sufficiently accounted for by what we have learned above of the extent of the mountain area drained by that river, and of the height of the Hsi-ta-shan range in which its feeders rise. A reference to the map shows that similarly favourable conditions for the collection of drainage do not exist in any other portion of the western Kuruk-tāgh.

Location of *Chu-pin* at Ying-p'an.

In view of the archaeological evidence obtained by me at a series of abandoned sites all along the southern edge of the Taklamakān and in the northern portion of the Tārīm basin, I think we may safely recognize that the amount of water available for irrigation has diminished during historical times throughout this great region of innermost Asia, whatever may be the direct causes, rate of progress, and other factors connected with this process.[17] Nor does the probability that cultivation on any appreciable scale is at present impracticable at Ying-p'an affect the question of the former importance of the site; for the number of the ruined shrines and the size of the circumvallation traced there conclusively attest the former existence of a fairly large settlement at this point. The Kharoṣṭhī documents, mere fragments as they are, found at shrine I suffice to prove that the period of occupation of the site goes back as far as that which dated records enable us to assign to the Lou-lan station L.A. This chronological evidence in respect of the Ying-p'an site indirectly supports the location of 'the town of Chu-pin' at that place; for the account of Li Tao-yüan, or rather the record on which it is based, shows that at the time when the information was obtained both the 'towns' of Chu-pin and Lou-lan were still actually occupied.

Continued occupation of site.

We know that the settlement at the latter place must have been abandoned about the middle of the fourth century. Occupation at Ying-p'an on the other hand probably continued into T'ang times, as shown by the T'ang coin picked up there and by collateral evidence found at the watch-stations of Kurghān and farther towards Korla. But this is exactly what was to be expected; for long after the road through Lou-lan had ceased to be used, traffic from the side of Shan-shan, i. e. the Lop region, towards Korla is likely to have clung to the old and convenient route which led to it past Ying-p'an. The presence of surface water and the consequent possibility of some cultivation must have alone assured the continued occupation of the site, just as the springs and the grazing in the neighbouring portion of the Kuruk-daryā bed have caused Ying-p'an to remain to this day a regular and necessary halting-place for travellers following the direct route from Lop to Turfān.

Reconnaissance towards Konche-daryā.

The above explorations will sufficiently explain my special interest in the region which separates the bed of the Kuruk-daryā at Ying-p'an from the present course of the Konche-daryā. A reconnaissance made on March 20th, the last day of our stay at Ying-p'an, had shown that the bed of the 'Dry River' bending northward from our camping place approaches quite close to the end of the several flood-beds from the Shindī river below the ruined site; thence it could be followed to the south-west for close on three miles, before it became indistinct. Continuing farther in the same direction, we passed rows of dead Toghraks striking to the south-east and suggesting successive shifts of the Konche-daryā from its ancient to its present bed. Lāl Singh had made the same observation when he followed the track leading from Konche-örtang (also known as Turfān-karaul) to Ying-p'an. But obviously such dune-smothered channels as these rows of dead trees probably mark lie too far south to be considered as possible feeders of the Kuruk-daryā.

On the evening of the same day the additional supplies arrived from Tikenlik, but to my disappointment the Loplik guide asked for from Singer and again from Ying-p'an failed to appear. His absence, probably due to apprehensions of official displeasure, would necessarily hamper us in our work towards Korla. All the same I kept to my previously arranged plan. We should

[17] See *Serindia*, i. pp. 243 sq., 286, &c. (see Index); *Ancient Khotan*, i. pp. 384 sq.; above, i. pp. 71 sq., 435, 459 sq.; ii. p. 569, [and my paper, *Geogr. Journal*, lxv. pp. 487 sqq.].

move together westwards until we reached the Konche-daryā. Then Afrāz-gul was to follow the river south to Tikenlik, where he would connect his traverse with that brought by Lāl Singh in January, 1913, from the south, and continue the survey of the Lop 'high road' along the Yārkand-daryā to Kara-kum and along the Konche-daryā to Korla. I myself would turn to the north and, moving across the desert, strike the ancient Ying-p'an–Korla route at the ruined watch-station of Kurghān described by Dr. Hedin as the nearest to Ying-p'an.

We started on March 21st from our Ying-p'an camp and following the wide well-marked bed of the Kuruk-daryā head in a westerly direction, found it filled with marsh and luxuriant reed-beds up to a point about one and half miles higher up.[18] There several deep-cut ravines, which represent the end of the Shindī river's drainage, join the bed from the north-north-west. It was quite evident that the periodical floods which descend in the former account for the moisture to be found in the Kuruk-daryā bed at this point.[19] Similarly it appears very probable that the south-western direction which, as already stated, the bed followed for some distance from here is a deflexion due to the alluvial deposits formed by the Shindī river's flood channels at their extremities. We were following what looked like an old trail leading westwards, and noticed that where it crossed the mouth of certain channels, it was marked by tamarisk bundles embedded in these channels as if intended to form a causeway over wet ground for laden camels. We made out traces of this track, which had a decidedly old appearance, over a total distance of more than ten miles from camp, in places where it had worn into the bare clay or *shōr*. No certain explanation of its origin suggested itself. Move from head of Kuruk-daryā.

After we had left the bank of the ancient river-bed, living Toghraks, so far plentiful, soon disappeared and dead trunks also became scarce. About three miles from camp we entered on a bare clay steppe, showing slight marks of wind-erosion and very scanty tamarisk scrub, mostly dead. After travelling seven miles we struck a shallow but unmistakable river-bed some 50 yards wide and, like the rows of dead trees near by, running approximately west to east. Dead reed-beds covered the banks. The traces of the track reappeared beyond, and in one place, significantly enough, lay along the top of a small clay terrace cut off by wind-erosion from neighbouring ground of the same level. Either the track was distinctly old or else wind-erosion was proceeding rapidly in this area. We had covered about ten miles when we reached a wide and well-defined dry river-bed, over 300 yards across for the most part and lined with rows of dead branchless Toghraks showing signs of great age. Its average depth seemed nowhere less than 10 to 12 feet; but much drift-sand lay within it. Dry beds crossed westwards.

This large bed came from the west and manifestly joined up in its farther course with that which we had traced on the preceding day's reconnaissance to a point south-west of Ying-p'an camp. That it formed a connexion between the Kuruk-daryā and the present Konche-daryā bed—still, as it proved, about five miles away to the west—was quite clear; but, of course, no close estimate could be formed of the time that had elapsed since it ceased to carry water. We followed the right bank of the bed westwards for about a mile until it became more and more smothered under high dunes; we then turned off WSW. in order to make sure of reaching water before nightfall. We crossed a succession of short but high ridges of sand, all aligned from north to south, before again coming upon a dry river-bed, of much smaller size but showing signs of great age. All the dead Move to Konche-daryā.

[18] The bend which the bed makes below this point has in Map No. 25. D. 3 been carried about a mile too far south through a mistake in the adjustment of our several routes meeting here.

[19] A closely corresponding observation was made in the Kuruk-daryā bed to the south-east of Yārdang-bulak, the water struck in wells near Camps ccxliii and ccxliv (Map No. 29. B. 3) being obviously due to subterranean drainage from the Yārdang-bulak trough.

trees along its banks lay on the ground in the form of shapeless splintered pieces of timber. Then the dunes became lower, living tamarisk bushes appeared amidst the dead tamarisk-cones, and after having covered a march of a little over sixteen miles we dropped rather suddenly upon a big winding lagoon of fresh water apparently left by the flooded Konche-daryā after the recent melting of its ice sheet. The river-bed, marked by rows of fine living poplars, was in sight about a mile off to the west. Here we camped when the camels came up at nightfall.

March to N. of Konche-daryā.

Next morning our parties divided, Afrāz-gul with the couple of Tikenlik men moving south along the Konche-daryā to the ferry of Konche-örtang (Turfān-karaul), while I turned to the north, in which direction lay the ruined 'Kurghān' according to Dr. Hedin's map. After proceeding about three-quarters of a mile, we crossed a dry river-bed of no great width running eastwards. Most of the dead trees lining it still stood upright. The ground beyond was covered with dunes from 6 to 10 feet in height; among them dead tamarisk-cones were fairly frequent, proof that moisture from the river had reached here in the distant past. After a march of six miles we came, in fact, upon a large and perfectly marked river-bed, about 120 yards wide where we crossed it and about 8 feet deep, running from NW. to SE. From its direction it seemed very probable that it connected with the wide bed passed on the previous day's march. Its banks were lined with dead Toghraks, many fine trunks lying prostrate on the ground, while other smaller ones still stood upright. The gravel found at the bottom suggested that we were nearing the foot of the Sai.

Ancient bed linking with Kuruk-daryā.

Beyond this bed we crossed an expanse of bare clay overrun in places by light dunes; their axis stretched from east to west, indicating that northerly winds prevailed in this region. Passing several small beds which had no dead trees on their banks and looked as if they were formed only by occasional drainage, we came upon living scrub and then, at a distance of some nine miles from camp, reached an imposingly wide bed lined with rows of big poplars, all fallen and much splintered. Their appearance suggested that they had died at a far more remote period than the trees found along the dry beds to the south. The bed was about 150 yards wide, while the rows of dead Toghraks along it formed a belt fully 500 yards across. The bed came from the north-west and stretched away in the direction of Ying-p'an. Judging from the relative positions shown by the plane-table, it seemed to me to lie in the direct continuation of the uppermost Kuruk-daryā where this is met by the terminal flood channels of the Shindī river. To my regret lack of time and the limited water-supply available in our two tanks prevented me from following this obviously ancient bed right down to the point where alluvial deposits from those channels have probably either obliterated or deflected it. From a fairly high sand ridge flanking this bed we sighted the ruined 'Kurghān' through the haze to the NNW. and reached it after a march of about two miles from the point where we had come upon the ancient bed. The intervening tract yielded an abundance of hardy scrub, nourished, no doubt, by such occasional drainage as descends from the bare gravel Sai. Reeds, too, appeared in clumps close to the ruins, and suggested that if a well were dug here, water might perhaps still be reached at no great depth.

## Section III.—WATCH-STATIONS ALONG THE ANCIENT ROAD TO KORLA

Ruined watch-station Y. 1.

Our early arrival at the 'Kurghān', where we camped on March 22nd, enabled me to make a close examination of the small ruined watch-station Y. 1 before night. Like the rest of the watch-towers to be described along this route to Korla, it had been first visited by Dr. Sven Hedin in March, 1896, and the brief but correct account he had given of it had sufficed to suggest to me the great antiquity of the ruin. It comprised, as seen in the sketch-plan (Pl. 38), a massive tower in the centre, 34 feet square at the base, surrounded by a square enclosure, measuring 76 feet outside

on each side. Both tower and enclosing wall were built in a fashion which at once recalled the constructive methods that I had constantly observed at the watch-stations of the ancient Chinese Limes in the Tun-huang region and farther to the east. As the photograph, Fig. 351, clearly shows, successive layers of reeds, about 2 or 3 inches in thickness, were inserted at intervals of about 4½ inches between single courses of sun-dried bricks set in plaster. The bricks were of an average measurement of 15 inches by 7, with a thickness of a little over 3 inches. These dimensions agree very closely with those prevailing in the masonry of the structures on the Tun-huang Limes.[1] The careful application here of the same methods of construction accounted for the comparatively fair preservation of the ruin, in spite of the great age indicated by this close correspondence in technical details.

Construction of tower.

The tower still rose to a height of 29 feet, and on every side except that facing south had suffered but little serious damage. On its summit an inner chamber, 12 feet square, could be measured; but lower down, the interior was filled with a heavy mass of debris which it was not possible to clear, with the very scanty labour at my disposal, within the time available. At a height of about 20 feet from the ground, the wall of the tower was 7 feet thick. This thickness appears to have increased to 11 feet at the base, thus accounting for the pyramidal shape of the whole tower. As seen in Fig. 352, the southern face of the ruined tower now shows a breach, 5 to 6 feet wide, from the top downwards to near the ground. It is on this side that the entrance to the interior of the tower must have lain, and this probably explains how this curious breach originated. The remains of wooden rafters projecting from the masonry on both sides of the gap make it appear likely that, except for the entrance, this face, too, was built solid, and that the breach originated merely by the layers of brickwork and reeds slowly disintegrating after the timber about the entrance had been destroyed. This and the whole of the interior, which probably contained several timber-built stories, had been subjected to fire, as proved by the redness of the clay debris filling the interior.

Arrangement of loopholes.

An interesting feature is presented by the loopholes which are found on the south face of the tower, and on that only, from a height of about 12 feet upwards. Like those found on all sides of the enclosing wall of the little fort, they have a triangular opening outside, originally about 6 inches wide at the base and about 4 to 5 inches high. On the inside, as clearly seen in the enclosing wall, the loopholes were splayed out. They were disposed in rows with vertical intervals of about 2 feet and at horizontal distances of 5 to 6 feet from each other, the loopholes of successive rows being arranged in quincunx fashion to permit of the maximum number being used for shooting. The fact that the tower was furnished with loopholes only on the south side, which faced the entrance to the enclosure, and only from a height of about 12 feet above the ground, makes it perfectly clear that the principal object was the intensified defence of the outer gate by a concentration of 'fire'.

Walls of enclosure.

The walls of the enclosure around the tower had a thickness of only 3½ feet at the top, but were well secured by a thick foundation of reed fascines at the base and by stout rafters of Toghrak wood inserted horizontally. In the tower, too, timber had been used for reinforcement of the masonry. The walls were much decayed over portions of the circumvallation; but the foundation layers were still everywhere traceable, the use of reed layers having helped to ward off wind-erosion. The destruction done at the north-eastern and north-western corners plainly showed where the force of the prevailing winds was greatest. The maximum height of the extant wall sections was about 10 feet, and, judging from the height at which the loopholes of the tower start, it is not likely that the original height greatly exceeded this.

The interior faces of the walls to the south and west showed clear signs of having been exposed

[1] See *Serindia*, ii. p. 737, note 14.

Relics of later occupation.

to fire, which probably had destroyed quarters built against them. Reddened clay and ashes were found elsewhere also within the enclosure, and shallow pits dug in the debris, perhaps by 'treasure-seekers', disclosed fragments of burnt timber. Large refuse heaps were found along the foot of the western and northern faces of the tower, resting on layers of ashes and on soil reddened by fire. They had obviously been formed through occupation of the interior after the tower had been subjected to a conflagration, the outer walls, no doubt, affording welcome shelter from the bitter winds of the desert. That this occupation belonged to a period much later than that of the original construction and defence of the station was made clear by fragments of a T'ang coin, with the legend *K'ai-yüan*, which was discovered near the surface of the refuse in the north-eastern corner of the enclosure. Most of the rubbish-heaps consisted of stable refuse, chips of wood, and reed-straw. Among the miscellaneous small articles found mixed up with these and described in the List, may be mentioned the iron fitting Y. I. 02 (Pl. CX), suggesting a sword sling; the fragments of a bronze pendant, Y. I. 012 (Pl. CXI), and bronze buckle, Y. I. 014; an iron arrow-head, Y. I. 015 (Pl. CXI), of unusual shape; part of a wooden fire-stick, Y. I. 03; the fragment of a bamboo arrow-shaft, Y. I. 06; remains of a string sandal, Y. I. 04, of same type as those found at L.A. and at Limes stations; miscellaneous fragments of silk and woollen fabrics &c. These relics, together with the coin, show that traffic had moved along this route down to T'ang times, if not even later.

Period of construction.

The examination of the structural features of this ruin, together with my subsequent observations at the other watch-stations of the route, has led me to the conclusion that the small fort dates from Former Han times. Until Chinese political control had been firmly established along the foot of the T'ien-shan, in the second quarter of the first century B. C., by the appointment of a Protector General,[2] the newly opened road passing through Lou-lan to the foot of the T'ien-shan and the northern oases evidently needed protection against Hun raids. These could easily descend upon it from the side of the Kara-shahr valley, ever an open gate for nomads holding the vast grazing uplands of Yulduz at its head, and equally from the side of Turfān across the western Kuruk-tāgh.[3] We also know from the Han Annals that in 101 B. C. Chinese military colonies had already for a time been established at *Lun-t'ai*, the present oasis of Bugur, and in the conterminous territory of *Ch'ü-li*, which must be located on the Inchike and Yārkand rivers to the south.[4] The ancient road marked by these watch-stations was certainly the most convenient line of communication to the former territory, and was also of importance to the colony in the latter; for from the side of Lou-lan the easiest access to it lay through *Wei-li*, its immediate neighbour, i. e. the cultivated tract on the upper Konche-daryā.

Search for other watch-towers.

On March 23rd we started from this ancient post in a north-westerly direction in order to trace the succession of ruined towers which Dr. Hedin had been shown by his guides on his march from Korla, and which his description of the route briefly mentions. I could no longer feel much doubt as to their antiquity, even though their first discoverer, in view of their 'perishable material' and fair preservation, was not prepared to ascribe to them an age greater than a few centuries.[5] But I was not certain of actually finding them all; for we lacked a guide familiar with the district, and very careful as I knew Dr. Hedin's compass traverse to have been, Dr. Hassenstein's map embodying its results could not be expected to replace local guidance, as it was only on the comparatively small scale of 1 : 1,000,000 and did not mark the position of the towers. Fortunately

[2] See Chavannes, *T'oung-pao*, 1907, pp. 153 sq.; above, p. 571.

[3] Cf. *Serindia*, iii. p. 1180. Regarding the power intermittently exercised by the Huns in the Turfān basin down to the middle of the first century B. C. and again later, see De Groot, *Hunnen*, pp. 205 sqq., and above, ii. pp. 570 sqq.

[4] Cf. *Serindia*, iii. pp. 1236 sq., with regard to the notice of the *Ch'ien Han-shu* translated by Chavannes, *T'oung-pao*, 1907, p. 153, note 2; Wylie, *J. Anthrop. Inst.*, x. p. 22.

[5] See Hedin, *Reisen in Z.-A.*, p. 76.



345. RUINED WATCH-TOWER, Y. II, ON ROUTE TO KORLA.



346. RUINED POST OF YĀR-KARAUL, ON ROUTE TO KORLA.



347. RUINED WATCH-TOWER, Y. III, ON ROUTE TO KORLA.



348. REMAINS OF ANCIENT WATCH-TOWER, Y. IV, ON ROUTE TO KORLA.



349. RUINED STŪPA, YING. I. i, YING-P'AN SITE, SEEN FROM SOUTH.



350. REMAINS OF RUINED WATCH-TOWER, Y. VII, ON ROUTE TO KORLA.

it was clear from the distinguished explorer's detailed account of the natural features of the ground that we should be able to follow more or less closely the foot of the gravel Sai, which in spite of the prevailing dust haze would enable us to keep a good look-out for the towers. The same account allows me to restrict my own description of the ground which we traversed in our search for the ruined watch-towers to the minimum needed to show its general character.

Appearance of Sai edge.

The march to the nearest of the towers reported by Dr. Hedin brought us gradually closer and closer to the terrace-like edge of the Sai which we had last seen at the Ying-p'an site. Where we crossed flood-beds descending from valleys in the hills, the line of these terraces, up to 30 feet or so in height, was interrupted for some distance. But elsewhere it was very pronounced. In places it receded into small bays like the cliff-lined coast of a sea or was scooped out by local drainage into finger-like projections, just as I had seen them along the northern edge of the Kuruk-daryā belt and on a larger scale by the side of the marsh basins of the terminal Su-lo-ho.[8] It was difficult to escape the feeling that we were still moving along the shore-line of that ancient sea which once covered the whole of the Lop desert and stretched its easternmost arm far away into the valley of Bēsh-toghrak. On the left, to the west, a belt of vegetation comprising scrub, high tamarisk-cones, and occasional clumps of wild poplars kept close within view, clear evidence that the present bed of the Konche-daryā could not be very far away. A dark line showing in the dim distance, in fact, probably marked the jungle growing on its banks.

First tower sighted.

The tower that Dr. Hedin refers to by the name of 'Ayag-tora' (i. e. *Ayak-tura*, 'the lower tower') was duly sighted after we had covered sixteen miles. The distance separating it from Y. I (Kurghān) is far greater than that between the watch-towers farther on. My suspicion that an intermediate post, whether owing to the deceptive nature of the ground, which is covered with tamarisk-cones, or in consequence of far-advanced decay, had here escaped attention, was subsequently confirmed by a statement made by Ibrāhīm, a hunter from Shinalga, whom we picked up in the jungle south-east of Sai-cheke (Map No. 25. B. 2). The remains of the watch-station Y. II were likewise almost hidden by close-set tamarisk-cones and would not have been detected by us had we not been moving high up on the Sai. Patches of reeds close by and a neighbouring belt of Toghraks to the south clearly indicated the vicinity of subterranean drainage probably brought down by the small flood-beds that we crossed here. Obviously water must have been obtainable here when the ancient watch-station was built. Indeed we found, about 30 yards to the south of it, a shallow hole apparently marking an old well. Wet soil was reached when we had dug here to a depth of about four feet; but as the soil was permeated with *shōr*, no drinkable water was hoped for and the intention of camping here was abandoned.

Ruined post Y. II.

Close examination of Y. II (Fig. 345) revealed features of interest, forcibly recalling various watch-stations that I had explored on the ancient Chinese Limes. The remains comprised a watch-tower of the size and construction usual on the Tun-huang Limes and poorly preserved walls of quarters situated to the west of it, as seen in the sketch-plan (Pl. 38). Both tower and quarters had been built on a small plateau formed by cutting down and then artificially enlarging what evidently had been the top of a fairly big tamarisk-cone. This now rises in the centre about 12 feet above the scrub-covered ground surrounding it. The watch-tower built on the eastern side of this platform still stands to a height of about 20 feet and at the base appears to have originally measured about 20 feet square. But its foot has been strengthened on the western and southern faces by the addition of slanting masonry about 7 feet wide at its lowest point. This as well as the outer casing of the original tower is built of bricks, 15" × 7–8" × 3" in size, just like those used at Y. I and in most of the watch-towers of the Tun-huang Limes. Reed layers at intervals of 16 inches divide the

[8] See above, i. pp. 345 sqq.; *Serindia*, ii. pp. 576, 589, 642; *Desert Cathay*, ii. pp. 139 sqq.

masonry courses. This reinforced masonry forms a facing to the tower of a thickness of about 2 feet. The core inside is formed of alternating layers of clay and reeds, the latter inserted at intervals of 12 inches. On the northern side the masonry facing has completely fallen owing to the foundation having given way, and the reed layers of the core here show signs of burning.

Relics from ancient refuse.

Towards the west a slightly higher portion of the terrace bears the remains of what evidently had been living quarters, consisting partly of low walls of stamped clay, but mainly of wooden posts standing in rows, which evidently formed part of wattle and plaster walls otherwise completely destroyed. The rectangular area enclosed by them measures about 27 feet by 19. In one corner a large round hole with fragments of pottery in it shows where a large jar has been fixed in the floor; on the inside of the north-east wall traces of a fire-place built of plaster could just be made out. The interior of this rectangular area was covered with thick refuse, made up mainly of reed-straw and horse-dung. But near the southern corner a number of miscellaneous articles were recovered. Among these were the fragment of a large wooden comb, Y. II. 01 (Pl. CX); a rudely made 'plasterer's float' in wood, Y. II. 09 (Pl. CX); a pair of well-made string sandals, Y. II. 010–11, of the same type as found at L.A. and along the Tun-huang Limes; a wooden winder for string, Y. II. 02 (Pl. CX), &c. Special mention must be made of the small bone die Y. II. 03 (Pl. CXI), with numbers on the sides of the cube marked in the same way as on a die from the Tibetan fort at Mīrān; and of a roughly executed painting on paper, found torn into several pieces, Y. II. 014 (Pl. CVII). It shows a Chinese building in front elevation, with a grotesque figure approaching; a grotesque beast also appears on other fragments. Many of the outlines are punched with small holes as if intended to be used as a stencil.

Revetment of platform.

A very curious feature of the ruined watch-station is the carefully constructed revetment of alternating layers of clay and reed fascines, each about 4 inches thick, which has been used to enlarge the platform on the south. It closely recalled a similar arrangement applied at T. XLIII. h, far away on the Limes of Hua-hai-tzŭ, to secure wider space on the top of a tamarisk-cone chosen for a watch-station.[7] In order to strengthen this extension of the platform and at the same time to facilitate access to the top, two solidly built ramps had been constructed leading up from below at right angles to each other. These ramps, 3 feet wide, were made of short rafters set into the clay and layers of reeds, and kept in position by double rows of stout vertical posts. The outside of the ramps was revetted with hurdles of brushwood. The whole gives an impression of great solidity and equals the constructive skill and neatness that I had observed in the wall line of the ancient Han Limes west of Tun-huang. It seemed clear to me that we have here the work of Chinese hands, trained in the same school of engineering skill as the builders of that other rampart, which, after two thousand years, still survives all the vicissitudes of the bare wind-swept desert.

Failure to locate *Kalta* spring.

The examination of these remains had delayed us, and when, after returning to the edge of the gravel Sai, we marched on in order to gain the springs which Dr. Hedin's description indicated in a locality known to his guides as Kalta, we failed to discover the ruined tower he mentions as close to them. A high tamarisk-cone that looked like a watch-tower in the falling dusk induced us to pass on beyond two small stone heaps, where probably we ought to have turned south into the adjoining belt of tamarisk and scrub. When at last, after a march of some twenty-seven miles, darkness obliged us to halt amidst thin Toghrak jungle, no water could be found anywhere, only a stretch of soft *shōr*-covered ground to the south, evidently marking an old bed of the Konche-daryā. As the ponies had tasted no water during two marches, and it seemed very doubtful whether by turning back the springs could be found in such deceptive ground without much loss of time, I sent them, with a couple of men and some camels under Abdulmalik, to the south, where

[7] Cf. above, i. p. 392.

they would be certain to strike either the Konche-daryā or some lagoon fed by it. After an anxious night, with barely enough water for us men in camp, a long wait followed in the morning before the men with the animals rejoined us. They had found great difficulty in crossing the old bed, filled in parts with salt marsh; then, going on to the south, they had passed a wide belt of soft salt-encrusted ground, and after crossing a ridge of drift-sand suddenly found themselves by the side of a small lagoon of fresh water, evidently formed by a recent inundation. There it was possible to water the animals and to refill our two tanks. Only dead trees were to be found near the lagoon, but at dawn a line of live Toghraks was seen in the distance beyond. Abdulmalik estimated the distance they had covered on their return march to camp at about four and a half 'Pao-t'ais', say eight miles, in a direct line, and this seems to agree well enough with the distance shown by Dr. Hedin's mapping of 1900, when he travelled from Dilpar on the Konche-daryā in a north-easterly direction to a point which could not have been very far away from our Camp ccil.

Remains of watch-tower Y. III.

When fixing my plane-table in the morning on a tamarisk-cone near the northern edge of the jungle belt, I had sighted a large tower to the north-west. Much time had already been lost, and there was no hope of reaching water on that day at the bend of the Konche-daryā which Dr. Hedin's description indicated at Sai-cheke. So I decided to forgo the search for the springs of Kalta which we had left behind us, and for the tower reported near them, and to march on to the conspicuous ruin, Y. III, in sight. It was reached after close on three miles' march and proved to be a massive and in its way quite imposing structure (Fig. 347). It has now the shape of a truncated pyramid, with a base originally about 55 feet square and a top about 20 feet square at its present height of about 30 feet. Large posts projecting above the top show that the original height must have been at least 10 feet more. Up to 7 feet from the ground the tower was built with layers of reeds interposed at intervals of 4 inches; whether these separated brick masonry or stamped clay could not be clearly made out, owing to the masses of debris covering the lower slopes. The base of the tower was strengthened by a revetment of stout timber, which along the foot of the northern face still survived to a height of close on 4 feet. Above this base the tower shows a remarkably solid construction. The masonry courses of bricks are overlaid at intervals of 1½ feet by reed fascines, on which rest great rafters of Toghrak wood. These in turn secure massive posts carefully fitted in chules, the whole forming a timber framework of remarkable strength and cohesion. The bricks show the same size as at the previously described towers, measuring 15 inches by 8 with a thickness of 3 inches. The tower, even with its present reduced elevation, commands a very extensive view over the level plain of soft clay. It had obviously been made so lofty in order to facilitate signalling operations over ground which to the south-east was probably, then as now, covered with close jungle and tamarisk-cones. No trace of surface drainage or subsoil moisture was to be found near Y. III. Yet prolonged occupation of the post was proved by refuse layers embedded under debris at the northern foot of the tower. Amidst the quantities of reed-straw and dung found there we recovered part of a Chinese document, which by the style of its writing and the quality of its paper recalled documents found at the Lou-lan station; also two wooden implements, apparently eating-sticks, Y. III. 01–2 (Pl. CX).

Ruined tower Y. IV.

From the top of Y. III another tower had been visible to the north-west in spite of the haze, and we reached it after proceeding about five miles over a level clay steppe with low scrub and light salt efflorescence. Before reaching it we crossed a wide but very shallow flood-bed coming from the hills to the north. The ruined watch-tower Y. IV (Fig. 348) proved in size, shape, and construction a close pendant to Y. III just described. It had, however, suffered a good deal more from decay. Much of the brickwork and reinforcing timber had fallen, the southern side being the least injured. A portion of the timber framework exposed above the extant top showed that the tower must have

risen well above the present height of about 30 feet. The Toghrak beams were all fitted with chules. Those lying on the slopes and along the foot of the northern and western faces were all remarkably massive, having lengths up to 20 feet or more and measuring about 8 inches square in section. Up to a height of 10 feet from the ground the masonry consists of single brick courses with a layer of reeds on the top, the two together having a thickness of 4 inches. Higher up, each five or six brick courses carry a layer of reed fascines and embedded in these horizontal beams secured by big uprights. At the foot of the eastern side we discovered some refuse, which yielded fragments of coarse woollen canvas, Y. IV. 01; vegetable fibre rope, Y. IV. 02; tangles of string, &c. About 18 feet from the southern face traces of a clay or brick wall probably marked the position of quarters.

Remains of tower Y. v.

No ruin could be sighted from the top of the tower; but by continuing to steer on the same north-westerly course as close as the numerous tamarisk-cones, 12 to 15 feet high, now studding the plain, would allow us, we came upon another ruined watch-station at a distance of less than four miles. Its much-decayed remains are far less conspicuous than those of Y. III and IV, which explains their having escaped Dr. Hedin's guides. The tower Y. v was built entirely of alternating layers of reed fascines and earth, 3 and 2 inches thick respectively. It appears to have originally measured about 24 feet square at the base, and now stands to a height of only 12 feet or so. But to this is added the height, about 8 to 10 feet, of the mound on which it is built. This could only have been an old tamarisk-cone, and the fact that its soft earth could not carry a massive timber structure probably explains why the method of construction with lighter materials was here resorted to. In order to secure more cohesion between the fascine layers short posts, 3 to 4 inches in diameter, were driven through them. But this had not prevented the whole mass from sliding down towards the south-east owing to subsidence of the loose earth in the old tamarisk-cone. On the west face I noticed the same curious curving of the fascine layers that I had observed in places along the frontier wall west of Tun-huang, of similar construction and dating from Han times, where, owing to sloping ground, no firm foundation could be secured for it.[8] It was evidently, in both cases, the necessity of rapid construction that made it difficult to guard against a defect which would come to light only after the lapse of considerable time.

Konche-daryā reached.

No other tower could be sighted beyond, though the ground now became more open. A continuous line of big Toghraks was to be seen far away to the west and south-west, clearly marking the present course of the Konche-daryā. We halted for the night near the bank of a well-defined curving bed, probably a lagoon which, as appeared from the abundance of reeds and scrub, had received water from the river until recent years. Here the terraced edge of the Sai, which had passed out of sight beyond Kalta, again drew close in from the north. But it was here much lower, and beyond Sai-cheke, about five miles farther on, became quite indistinct. At that point a fairly well marked track we had picked up on the morning of March 25th brought us to the bank of the Konche-daryā which, by the big bend (*cheke*) it here makes, has given the place its name. A short distance before reaching it, we luckily fell in with Ibrāhīm, a young hunter from Shinega, towards Korla, and thus secured the local guidance we so sorely needed. The sight of the river flowing in a deep-cut reed-lined bed, with a fine volume of perfectly clear water, was very grateful to eyes which, for many long months, had seen nothing that could be called a river. The width of the Konche-daryā was here fully 40 to 50 yards and its current about two feet per second.[9] We had no means of ascertaining its depth; but it could scarcely be less than 6 to 7 feet at its shallowest, and Ibrahīm talked of ten *gulach* in the middle, which, if obviously an exaggeration, was yet significant.

[8] See e. g. *Serindia*, ii. Fig. 189.

[9] The width of the Konche-daryā here and along its conjectured course above and below has been shown too wide in Map No. 25. B. 2, through a draughtsman's mistake.

Ibrahīm knew of no ruin to the south-east of Sai-cheke nearer than Y. iv, but guided us about three and three-quarters of a mile farther on to the '*tura* of Gherilghan', as he called it. This badly decayed tower, Y. vi, situated amidst close-set and fairly high tamarisk-cones, might otherwise have easily escaped us. It appeared to have been constructed in much the same fashion as Y. iii–iv; but as its slopes were heavily covered with soft earth, apparently owing to the presence of more moisture, and its foot partly overgrown with tamarisks, close examination was difficult. Both bricks and stamped clay, it seemed, had been used between layers of reeds, Toghrak rafters and posts serving for a framework. The present height was about 22 feet, and the top, between the exposed ends of rafters, measured about 20 feet across. The dimensions of the base could not be made out with any certainty. Plentiful refuse of straw and chips of wood lay on the south-western slope, and from this were recovered the string sandal Y. vi. 01, and the miscellaneous fragments of silk and woollen fabrics shown in the List below. The position of the refuse showed that the top of the tower had been occupied at one time by watchmen. Ruined post, Y. vi.

Beyond Y. vi no ruined tower was known to Ibrahīm nearer than that of Sanje, fully fifteen miles away (Map No. 25. A. 2), a distance obviously too great for signalling operations. It has accordingly since occurred to me, as the ancient route we were following was drawing near to the foot-hills of the Kuruk-tāgh, that some low ridge jutting out from them towards Gherilghan-kōl, somewhere in the vicinity of the triangulated point shown with the height 3,205 in the Map No. 25. B. 2,[10] may possibly have been utilized for a connecting watch-station. Such a position falling close to the straight line between Y. vi and Y. vii might well by its height have saved the necessity of building a conspicuous tower for the post. Indeed, the ground that we traversed beyond Y. vi, first along the edge of the Sai and then across an area of bare salt-permeated clay towards the river, is so open that no ruin of any size could have escaped the eyes of hunters and others who pass here. The jungle belt near the small lagoon, communicating with the river and known as Gherilghan-kōl, is frequented as a grazing ground, and before we reached camp here the track had become quite well marked. It is used by carts which bring timber from the groves of elms to be found higher up in the Kuruk-tāgh valleys that debouch here towards the Konche-daryā. Lagoon of Gherilghan-kōl.

On March 26th we set out early from Gherilghan-kōl in the hope of reaching the district head-quarters at Kara-kum after visiting the two ruined towers known as Sanje and Yār-karaul on the direct route to Korla. We had already sighted the first of these from a high tamarisk-cone near our camp, though it took us a march of over eight miles to reach it. Most of this lay over a plain of bare clay, which wind-erosion was carving into small rudimentary Yārdangs, all running from north to south. It looked like ground well capable of cultivation if water were brought to it by canals from higher up the Konche-daryā. The tower of Sanje (Fig. 350), built of solid brick masonry on a projecting terrace of the gravel Sai, presented a striking appearance. Its eastern, southern, and western faces had suffered much decay, partly because the foot of the terrace had been eroded by a flood-bed which passes close below it. But the masonry on the northern face and on a small adjoining portion of the western one still rose almost vertically to a height of 25 feet. Careful examination here disclosed that an inner core of masonry, representing the original tower, about 35 feet square at its base, had subsequently received an addition of brickwork which, as seen in the sketch-plan (Pl. 38), enlarged its dimensions to 57 feet at the base, if not more. At the north-eastern corner of the original tower the plaster covering the face now hidden behind the additional masonry could still be traced by a little scraping of the latter. The bricks used throughout, both in the original and the enlarged tower, were of exactly the same size, 15″ × 7–8″ × 3″, as those found in all the towers of the ancient route. Above each four courses of bricks a layer of reeds was inserted. Watch-tower of *Sanje*, Y. vii.

[10] *Recte* 3,492 feet; cf. *Memoir on Maps*, p. 144.

The masonry was reinforced by timber, but the use of this was much more restricted than in Y. III and Y. IV, owing to the far greater solidity of the masonry.

Finds in refuse at Y. VII.

In view of the constructive features just noticed, it appears to me probable that this watch-tower, too, like those previously described, goes back to Former Han times. The enlargement may have been undertaken soon after the original tower was built, perhaps with a view to greater height and thereby wider outlook and visibility. Among the debris on the southern and eastern faces refuse, consisting mainly of reed-straw, was found up to a height of about 8 feet from the ground. In this, and only a few inches from the surface, were found two small leather pieces from lacquered scale armour. Their ornamentation with red designs on black ground closely resembled that of the leather armour scales excavated from the rubbish layers of the Tibetan fort at Mīrān.[11] Leather thongs like those used as fastenings on the Mīrān scales still adhered to these pieces. The resemblance to the Mīrān finds and the place where the scales were picked up suggest that they found their way into the refuse in T'ang times, when the towers, though already decayed, may still have served as convenient halting-places. On a narrow tongue of the Sai terrace and about a hundred yards to the north of the tower there were graves scattered over an area about 50 yards across. They had all been dug up, evidently a long time ago. Ibrāhīm, on the strength of a statement by his father, said that this had been done by Korla people about forty years ago, i. e. during Yāqūb Bēg's régime. No traces of coffins survived and but little trace of bones. The graves were probably those of soldiers or wayfarers who had died at this dreary roadside station.

Wind-eroded terraces.

From Y. VII the ruined watch-station known as *Yār-karaul* could be seen, and we reached it after a march of seven miles over ground where tamarisk-cones, and farther on reeds also, again made their appearance. The terrace-like edge of the gravel glacis, to which the route keeps near, is broken up near Yār-karaul into a number of bold Mesas. One of them is occupied by the ruined post and accounts for its name. They have been carved out of the clay underlying the gravel surface of the Sai by wind-erosion, which finds here a very effective instrument in the coarse sand washed down from the foot-hills. The Mesas stretch from north to south, clearly showing the prevailing wind direction. About a quarter of a mile before Yār-karaul we passed a smaller terrace of this kind, whose walls of clay cut through or hollowed out by erosion gave it the appearance of a ruin.

Ruined post of *Yār-karaul*, Y. VIII.

The Mesa bearing the ruined post, Y. VIII (Fig. 346; Pl. 38), rises to a height of about 50 feet and on its top extends over a length of about 112 yards, with a maximum width of less than 60 yards. The remains of the small tower or guard-room occupy approximately the centre of the flat wind-eroded summit. Of the walls, 4 feet thick, only that facing south and containing the entrance still stands to a height of about 10 feet. The other walls, forming with it an enclosure 19 feet square on the outside, have been demolished to within a foot or two from the ground by treasure-seekers. These have also burrowed into the foundations, which are made of rough blocks of clay so as to enlarge a small natural terrace into a base. The bricks used in the masonry of the walls are of the usual size of 15" × 7–8" × 3". The clearing of a rubbish-heap below the southern wall of the ruin, composed mostly of reed-straw and remains of fuel, yielded only the fragment of a Chinese paper document and a few small pieces of plain silk. That the top of the Mesa was gained, in ancient times as now, by a steep and narrow couloir from the south-west, was proved by a small layer of refuse like the above found under the sheltering cliff about half-way up. About a dozen graves, all opened long ago, were traceable in two groups to the south and south-east of the ruin. The hollows marking them showed a north to south direction corresponding to the slope of the plateau.

[11] See *Serindia*, i. p. 464; iv. Pl. L. I much regret that the two leather scales from Y. VII cannot be traced at present in the collection.

There was no time for the examination of these humble resting-places, as we still had a long march before us that evening, to the newly established district head-quarters of Kara-kum south-westwards. The route followed took us first across a wide area of tamarisk and scrub-covered steppe, where shallow flood-beds and plentiful salt efflorescence indicated liability to inundation both from the drainage of the westernmost foot-hills of the Kuruk-tāgh and from the overflow of canals from the Konche-daryā. Some seven miles from Yār-karaul we came upon the first detached patches of cultivation belonging to 'old Kara-kum', on ground known as Gherilghan. Then over water-logged roads, through an alternation of fields and unreclaimed land, we reached the half-abandoned market-place of Kara-kum 'Kōna-shahr'. The official head-quarters had been shifted thence in the preceding autumn to the 'new town' of Kara-kum, situated on the left bank of the Konche-daryā eight miles farther south, and there we arrived long after nightfall, having covered fully thirty-one miles in the day. March to Kara-kum.

## Section IV.—THE TERRITORY OF WEI-LI AND THE MODERN KARA-KUM

I was obliged to halt two days at Kara-kum, partly in order to let men and animals have some rest after the rather trying desert journey and partly in order to save if possible one of our camels which had been severely wounded, near Sanje, by the accidental discharge of Ibrāhīm the hunter's gun. We had been obliged to leave the poor beast behind, with one of the men to take care of it, in the hope of bringing it in later. This hope was destined to disappointment, and the victim of our guide's want of care had to be killed by Hassan Ākhūn, my camel factotum, on his return to the spot with assistance. Halt at Kara-kum.

This halt at Kara-kum proved useful, inasmuch as it enabled me to secure reliable information about that out-of-the-way and comparatively little known Chinese district which comprises the northern portion of the Lop area and the tract between the upper Konche-daryā and Korla. I have already had occasion to discuss in *Serindia* the reasons which lead me to identify the territory of *Wei-li* 尉 犂 with this modern district.[1] A brief summary of the Chinese historical notices referring to it will therefore here suffice.

The notice in the Former Han Annals makes the 'kingdom of Wei-li' join Shan-shan and Chü-mo on the south.[2] This corresponds correctly enough to the position of the district now officially known as Kara-kum, which extends along the Konche-daryā from below Korla down to near the river's junction with the Tārīm below Tikenlik. We have seen that, according to the *Ch'ien Han shu's* notice of Shan 山 or the western Kuruk-tāgh, the chief place of this territory was situated 240 *li* east of Wei-li, which clearly takes us to the vicinity of the present Kara-kum.[3] The distance to, and bearing of, the seat of the Governor-General, probably in the present oasis of Yangi-hissār, viz. 360 *li* to the west, are approximately correct. So also is the statement that from *Ch'ü-li* 渠 犂, the riverine tracts between the Inchike-daryā and the Yārkand-daryā from Shahyār downwards, the road led to Wei-li.[4] The population of 2,000 families recorded for Wei-li as compared with that of 700 families for the adjoining *Wei-hsü* or Korla suggests a fairly large territory. *Wei-li* in Former Han Annals.

The Later Han Annals do not furnish a special notice of Wei-li, but mention its 'king', in significant conjunction with the chiefs of Yen-ch'i (Kara-shahr), Wei-hsü (Korla) and Shan, all territories closely adjacent to Kara-kum, as having been defeated and punished by Pan Ch'ao in *Wei-li* in later Annals.

[1] See *Serindia*, iii. p. 1231.

[2] Cf. Wylie, *J. Anthrop. Inst.* xi. p. 101.

[3] Cf. above, ii. p. 763; Wylie, *loc. cit.*, p. 105.

[4] Cf. Wylie, *ibid.*, p. 100. I may add here to the statement made in *Serindia*, iii. p. 1231, about *Ch'ü-li*, that the distance of 650 *li* indicated from Ch'ü-li to Wei-li might lead us to locate the chief place of the former not far from the present Shahyār.

A. D. 94, who thereby completed his pacification of the Tārīm basin.[5] The *Wei lio*, composed between A. D. 239–65, similarly associates Wei-li, Wei-hsü, and Shan as territories all dependent on Yen-ch'i or Kara-shahr, where it describes the continuation of the 'route of the centre' to the west of Lou-lan.[6] Finally the T'ang Annals, also, place Wei-li correctly to the south of Yen-ch'i, without apparently furnishing any details about it.[7] I am unable to trace any later notices, whether Chinese or other, which can be directly connected with the tracts now comprised in the district of Kara-kum. But it deserves to be mentioned that the present official attribution to it of the Chinese designation *Wei-li* proves that the correct location of the ancient territory is known to the modern administration of Hsin-chiang.

Historical importance of *Wei-li*.

Geographical conditions make it clear that the territory of ancient Wei-li derived importance mainly from the position it occupied as a kind of 'corridor' along the Konche-daryā. All through historical times it must have served, just as it does at present, to link the cultivable portion of the Lop region, corresponding to Shan-shan or the modern Charkhlik tract and commanding the routes which lead thence towards Tun-huang, Tsaidam, Tibet, and Khotan, with the north-eastern corner of the Tārīm basin and the high roads along the T'ien-shan. No doubt the importance of Wei-li was necessarily even greater at a time when the ancient 'route of the centre' connecting the Tārīm basin directly with China via Lou-lan passed through it. But even after this route was abandoned, any traffic connected with trade, administration, or military movements that passed between the oases in the north and the cross-roads of Shan-shan was obliged to traverse Wei-li.

Modern shifts of '*Wei-li*' head-quarters.

The geographical factors determining this traffic and the administrative, commercial, and strategic needs served by it have remained the same to the present day. This explains the persistent endeavours made by the Chinese administration of the 'New Dominion', ever since its reconquest, to facilitate the use of this route from Korla to Charkhlik by the creation of agricultural settlements; for without the local supplies that these alone can furnish, the value of this line of communication, some 350 miles in length, must necessarily remain precarious. Considerable difficulties have been encountered, with the curious result that the head-quarters of the district officer entrusted with the organization of such colonies has been moved in the course of about twenty-five years to four different localities in succession. These frequent shifts, which seem to invest the head-quarters of modern Wei-li with a quasi-peripatetic character, did not fail to attract the attention of Professor Elsworth Huntington. When visiting Tikenlik in 1906 from the side of Lou-lan, he was led to recognize in them an illustration of the physical difficulties that once also beset that ancient settlement, though to a smaller extent, and at the same time to treat the difference between the conditions indicated by these modern colonizing attempts and the conditions assumed to have prevailed at Lou-lan as definite evidence supporting his theory of a great secular change of climate.[8] He attributed those shifts of the colony intended for the Wei-li head-quarters from Jan-kul to Dorāl, below Tikenlik (Map No. 25. c. 3), and thence again in 1901 to Kara-kum, 'entirely to the extreme salinity of the rivers', which would render fields irrigated from them for two or three years in succession worthless for production.[9]

Cause of shifts.

In view of the interpretation proposed by the eminent geographer, the question of these curious shifts assumed a direct quasi-antiquarian interest. My examination of old sites to the south of the Taklamakān, the abandonment of which had also been ascribed to the increased salinity of the water-supply, had not yielded any definite evidence on the point. Nor had Professor Huntington been able himself to visit any of those former sites of the Wei-li head-quarters within a short time

[5] Cf. Chavannes, *T'oung-pao*, 1907, pp. 208 sq.; 1906, pp. 234, 236.

[6] See Chavannes, *T'oung-pao*, 1905, pp. 552 sq.

[7] See Chavannes, *Turcs occid.*, p. 110.

[8] See Huntington, *Pulse of Asia*, pp. 271 sq.

[9] Cf. *ibid.*, pp. 266 sqq.

of their abandonment. I was therefore particularly glad of the opportunity afforded by my halt at the 'new town' of Kara-kum, still actually 'in the making', to secure some reliable information about the ground close by from which the latest shift had just been made, and as to the reason why that ground had been relinquished. I was fortunately able to make my inquiries in several quarters of widely different character and to compare the data.

Official Chinese explanation.

It was a peculiarly happy chance that enabled me to gather the official view of the case from the late magistrate of the district, a very intelligent Tungan talking fluent Turkī, who was just on the point of retiring to Urumchi. Familiar with the local conditions of his charge from a stay which had extended over several years, and at the same time no longer directly interested in its affairs, he was ready to offer observations with a frankness not usual among Chinese administrators still in office and to do so at the same time, as far as I could judge, without bias. The difficulties with which all efforts to encourage cultivation on the lower Tārīm, in the Lop tract proper, have to contend were attributed by Huang Ta-lao-yeh partly to the vagaries of the river branches, which often interfere with the maintenance of canal heads and favour the opening of new canals by other small colonies at the expense of the older ones, but even more to the attitude of the indigenous Lopliks. Themselves unfitted by their habits for steady agricultural work, they oppose the settlement of immigrants likely to remain on the land from fear that these will interfere with their grazing and traditional livelihood. In spite of these impediments, Tikenlik was more than maintaining itself as a village of considerable size for these parts. Afrāz-gul, whose independent report on Tikenlik fully confirmed the above statements, found there close on 150 households, among them a large proportion of Turfān people, some of whom had been settled there for about twenty years. Of fields being ruined by *shōr* he heard no complaints, but he did hear of occasional shortness of the canal discharge, due to the causes above indicated.

Irrigation of Kara-kum.

Conditions very different from these were affecting the fortune of Kara-kum, as might evidently be expected from the distinct geographical character of the district. As reference to the map will show, the lands of Kara-kum lie in a big nook which is bounded in the north by a low outlying plateau from the Kuruk-tāgh, on the east by the glacis of the hill range striking towards the south-east, and on the other sides is encircled by the bending course of the Konche-daryā. It is not from this adjacent portion of the river's course that Kara-kum receives its irrigation, but from a large canal which takes off above Korla not far from where the drainage of the Baghrash lake issues from the hills. This canal is carried through a gap in the above-mentioned plateau near the village of Bāsh-engiz (Map No. 21. D. 1). Thence passing the prosperous village of Shinega it distributes its water over the flat expanse of fertile alluvium at 'old' Kara-kum. Cultivation here is thus wholly independent of any changes in the course or level of the river, and is assured a constant and abundant supply of water coming almost straight from the great lake reservoir which gathers the drainage from a considerable section of the high T'ien-shan. The water brought down by this canal is as fresh as that of the lake, and it is not its salinity that has caused trouble at Kara-kum.

Over-irrigation produces *shōr*.

There, as in other places, the outcrop of *shōr* which has injuriously affected a portion of the area brought under cultivation near 'old' Kara-kum was, as Huang Ta-lao-yeh explained and older settlers I consulted acknowledged, directly a result of over-irrigation carried on without any attempt to provide for adequate drainage. The plain being almost perfectly level, the water, where it has been left to stagnate around the fields, has necessarily caused the soil of these to turn more and more salt with a consequent rapid diminution of the yield. Exactly the same difficulty always occurs at canal ends, in India as well as Turkestān, wherever the water-supply is abundant and efficient control is not exercised to enforce the requisite drainage operations. Even where the ground by its fall provides natural drainage, cultivation newly opened is bound in an arid region

to contend for years with the saline efflorescence brought to the surface when irrigation is started. Where cultivation of such new fields is systematically persisted in, near the old oases of the Tārīm basin, whether under official pressure or under the influence of economic conditions resulting from an increased population, this trouble is gradually overcome. The fields which in the beginning had yielded rich crops and then after a few years had rapidly deteriorated, again become gradually fertile, and of value to colonists who had previously been loud in their complaints and had often been anxious to desert their holdings.[10]

Instability of new settlers.

But at Kara-kum there was a conspicuous absence of those human factors which might favourably influence the process of reclamation just described. Of this I had ample occasion to convince myself when I made the acquaintance of many of the settlers *in spe* whom official advances of seed and temporary maintenance had attracted to the new epiphany of Kara-kum, established on the left bank of the Konche-daryā and popularly designated as *Konche*. They were the same vagrant folk, drawn from such distant oases as Yārkand, Kuchā, and Khotan, whose congeners I well remembered seeing at Charchan, Vāsh-shahri, Charkhlik, all of them places that official action was anxious to 'develop'. For the most part loafers or men of an adventurous disposition, for whom steady labour in the settled life of fairly crowded oases holds out no attraction, these 'Musāfirs' or 'Wanderers', as more respectable local people characteristically called them, seemed to constitute a standing feature in the staging of such new colonizing ventures.

Reasons for starting new colonies.

Obviously such wandering folk were not of the stuff to overcome the initial difficulties that face the cultivator on newly reclaimed land, nor were they credited with any serious intention of doing so. Respectable headmen from other small places in the long straggling district of Wei-li, who were attending at the newly built Ya-mên, did not disguise from me their conviction that this large crowd of *soi-disant* settlers gathered about the Bāzār of the 'new town' would not stay beyond a year or two, until they had reaped the first ample harvests and eaten up such official advances as dribbled down to them through greedy hands at the local Ya-mên. They would then gradually melt away to play the same role at some other place which was to be 'colonized' under the auspices of an enterprising district head anxious for the distinction to be gained—and still more for the profits to be made—over such transactions. For it did not need much familiarity with the methods prevailing in most of these little Ya-mêns to realize that whatever the aims cherished or professed in higher places might be, the immediate motive for the establishment of new colonies or the shifting of old ones was supplied by the opportunities they offered to the district heads and their staff to supplement, out of the special grants accorded for the enterprise, the extremely meagre pickings from the charge of unprofitable districts.

Explanation of shift to Kara-kum.

As regards the official reason put forward for the latest shift in the case of Kara-kum, the retiring Amban explained to me that it was hoped that the newly opened settlement would profit by the close proximity of its lands to the deep-cut bed of the river. This would provide a convenient natural drainage and thus prevent the damage from *shōr* due to stagnating waters which most of the transient 'settlers' at old Kara-kum had obviously not been prepared to counteract by dint of hard work. For the previous shift from Dorāl below Tikenlik to Kara-kum, which took place about 1900, a plausible reason had apparently been found in the greater security with which it would be possible to watch and control a large number of Tungan rebels who had escaped to Lop from the Hsi-ning side a few years earlier and had been forced to settle down about Dorāl, if they were moved with the district head-quarters to Kara-kum; for this place lies within two marches of

[10] Cf. *Desert Cathay*, i. pp. 128 sq., for observations on the 'new lands' of Kara-kum near Yārkand, where a large area of good land newly brought under cultivation through P'an Ta-jên's canal was for a time in danger of being deserted again through the same cause, but was ultimately fully reclaimed from the desert.

Korla with its Chinese garrison, and is easily accessible from the high road. It was scarcely surprising that with the lulling of official apprehensions almost all these unwilling settlers had soon found their way thence to the Kara-shahr side, where they could join an older colony of their kin and obtain better openings for their hereditary pursuits.

Observations at 'old Kara-kum'.

The conclusions to which the above information had led me as regards the latest shift of the head-quarters of modern Wei-li were fully confirmed by what I observed on the occasion of our move on March 29th from the 'new town' of Kara-kum to the northward. For about two miles clearings had been made and fields laid out amidst patches still showing luxuriant tamarisk jungle. Then after crossing an unreclaimed area, where a dry bed was pointed out to me as the head of an old river-course connected with the lagoon of Gherilghan-köl near our Camp ccli, we arrived at the southern edge of 'old Kara-kum' cultivation. Reeds and scrub had overrun most of the fields, but the people who still occupied two farms had no complaints to make of the unproductiveness of their soil. A mile farther on we reached the half-deserted Bāzār of the 'old town' with its Sarai and Ya-mên buildings. Here I was able to examine a number of settlers who had stuck to their land, among them some who had come when the colony was first established about 1900. They expressed themselves quite satisfied with the quality of the soil they were cultivating, and attributed the departure of others to some extent to the damage done in certain parts of the cultivated area by the accumulation of stagnant water below rice fields, which causes *shōr* to develop around. It was over-abundance of canal water and neglect of drainage that accounted for this. But the reasons for the abandonment of a far greater proportion of the land were to be found, firstly in the vagrant disposition of settlers of the type described above who were ever for trying their luck in new places; and secondly in official pressure which had forced others to give up their holdings and to take up land in the newly 'boomed' settlement on the river. In an orchard close to the Ya-mên various fruit trees and vines were still thriving, eloquent proof that both soil and water suited their cultivation. But with signs of neglect all round, their death through want of regular irrigation could not be long deferred. Yet the canal which brought water to the distributary channels of both old and new Kara-kum had been enlarged only a few years before with the help of some two thousand men collected for this beneficent *corvée* from Korla, Bugur, and other oases. Where I measured its discharge higher up close to Shinega, it amounted to over 200 cubic feet of water per second, and there was nothing to prevent this being greatly increased; for the canal took off above Korla, where the volume of the Konche-daryā was at all seasons greatly in excess of present irrigation requirements.

Ruined station, Y. IX, at Suget-bulak.

Leaving the last fields of 'old Kara-kum', the road passed across a wide level plain with abundance of scrub and reeds, where water was said to be everywhere obtainable at no great depth and to be free from salinity. Having thus covered some eight miles through a district which, given an adequate population, could readily be transformed into a fertile tract, we turned off north-eastwards, when within sight of Shinega village, to the spring of Suget-bulak at the foot of the gravel glacis. A ruined tower rises near it on a low projecting terrace of the Sai and is passed by the track coming from Sanje and Yār-karaul. It has decayed into a shapeless mass of brickwork, about 37 feet in diameter and about 10 feet high, and has evidently suffered much through the burrowings of treasure-seekers. Its position leaves no doubt that it belonged to the line of ancient watch-stations guarding the route from Ying-p'an. I could not learn of any ruin intermediate between Y. IX and Yār-karaul, about ten miles distant; but from the configuration of the ground it seems probable that when this tower was intact, the post of Yār-karaul on its high Mesa could be sighted from it.

This was the last of the watch-towers of which remains could be traced along the ancient

Watch-towers guarding ancient route.

route that once passed from Ying-p'an to Korla, and a few general remarks may fitly conclude our survey of them. We have seen that the best preserved of these towers show a very close resemblance in all structural features to those of the Limes with which the Emperor Wu-ti had protected the line followed by early Chinese trade and military enterprise towards the Tārīm basin as far as the termination of the Su-lo-ho. Similarly the disposition of the towers at points and distances which would permit of the communication of fire signals, such as are frequently mentioned in the Han records recovered from the Tun-huang Limes, closely agrees with that on the line of detached watch-stations traced by me that guarded the south-western flank of the Limes on the side of the terminal basin of the Su-lo-ho.[11] The importance of protecting by similar means that continuation of the great line of communication which lay beyond Lou-lan must have suggested itself with all the more force to those who directed the development of the great Han Emperor's 'forward policy', because it was just along the western foot of the Kuruk-tāgh that the danger of Hun raids was the greatest; for this region afforded both water and grazing for raiders, while on the other hand missions and caravans could obtain the shelter of permanent settlements only near its northern end.

Guarding of line to Lun-t'ai.

For the belief that the line of watch-towers from Ying-p'an towards Korla goes back to this early stage of Chinese expansion some direct support may be found in an important contemporary notice preserved in Ssŭ-ma Ch'ien's history and also embodied in the 'Notes on the Western Regions' in the Former Han Annals. We are told by Ssŭ-ma Ch'ien that after the success obtained by Li Kuang-li's second expedition against Ta-yüan or Farghāna (102–101 B.C.) a military governor was established in the Tun-huang region: 'westward from here to the Salt Lake the road at many points was protected by military stations, and in Lun-t'ai there were several hundred soldiers stationed as farmers, the special commissioners in charge of the farms being required to guard the cultivated land and to store the crops of grain for the use of embassies abroad'.[12] Ssŭ-ma Ch'ien's great work was in all probability completed about 99 B.C. or a few years later. This notice of a military agricultural colony at Lun-t'ai accordingly takes us back to the very time when the Limes west of Tun-huang was being constructed, as proved by the documents there excavated.[13] As Lun-t'ai can safely be located at the oasis of Bugur on the high road west of Korla (Map No. 21, A. 1), the establishment of watch-stations on the line of communication which leads to it may well be assumed to belong to the same years. How long the series of posts then constructed along it continued to be occupied and used for their original purpose we have no means of determining. But that they served as convenient halting-places on a route which was probably frequented by traffic to and from the Lop side long after Lou-lan was abandoned may be safely concluded from the remains of paper documents, the T'ang coin, and other small relics found among their refuse.

Continuation of watch-stations to Korla.

There still remains for consideration the question as to the probable continuation of this line of watch and signal towers towards the north. I did not learn of other remains of this kind towards Korla, from which Y. IX, at Suget-bulak, is separated only by a direct distance of about twelve miles. But the plateau that lies to the east of the road connecting Shinega with Korla would have furnished a very convenient position for an intermediate post, and owing to its elevation above the level plain on either side no tower of any height would have been needed there for transmitting signals. The same remark applies also to the final offshoot of the Kuruk-tāgh which separates the plain about Korla from the westernmost part of the Baghrash lake basin north-eastwards. A point

[11] Cf. *Serindia*, ii. pp. 633 sq., 641 sqq.

[12] See Hirth, 'The Story of Chang K'ién', *J.A.O.S.*, xxxvii. p. 116. The corresponding notice in the Former Han Annals mentions not only Lun-t'ai but also Ch'ü-li as provided with a military colony; see Wylie, *J. Anthrop. Inst.*, x. p. 22.

[13] Cf. *Serindia*, ii. pp. 728 sqq.

on these heights overlooking the defile through which the Konche-daryā debouches might have served most conveniently for a signal station, and this was strongly suggested to me by my observations in December, 1908, relating to the two undoubtedly ancient watch-towers found in a line to the north and south-west of the Ming-oi site above Shōrchuk (Map No. 25. A. 1).[14]

Defile of 'Iron Gate' above Korla.

In my description of these ruined towers in *Serindia*, I have fully indicated those structural details which link them very closely both with the watch-towers traced on the Ying-p'an–Korla route and those to be found on the Tun-huang Limes. I have in the same place called attention to the obvious advantages to be derived from a line of signal stations pushed out from Korla into the Kara-shahr valley. It would afford timely warning of danger threatening from what at all times must have been a main gate for the irruptions of Huns and other foes into the Tārīm basin. A position of great military importance is offered by the narrow defile in which the Konche-daryā has cut its way through, between the last outlier of the Kuruk-tāgh and the foot of the big spur of the T'ien-shan flanking the valley of the Kara-shahr from the west. Under the name of the 'Iron Gate', 鐵門 *T'ieh-mên*, the defile figures in the *Chin shu's* account of the exploit by which in A. D. 345 a Chinese expedition dispatched by Chang Chün, the local ruler of westernmost Kan-su, forced its way through from Yen-ch'i (Kara-shahr) and conquered Wei-li.[15] Here, too, Yāqūb Bēg during the months preceding his death at Korla had hoped to stem the advance of the Chinese reconquest in 1877. The direct distance separating the watch-tower south-west of the Ming-oi site from that of Y. IX at Suget-bulak is not more than about twenty-two miles, and with a point of such great strategical importance between the two it seems difficult to believe that the facilities for semaphoric communication offered by the intervening hill chain were left unused. But this conjecture could be established only as the result of a close and systematic search on the ground, for which, to my great regret, I was unable to spare the time during my busy stay at Korla.

Cultivation at *Shinega*.

After visiting the remains of the tower at Suget-bulak I regained the northern edge of the cultivation of Shinega,[16] a flourishing little oasis watered from the same large canal that carries water to Kara-kum. Together with Bāsh-engiz, a hamlet farther up, it counts over fifty households, all families from Korla who settled here in pre-rebellion times and are now well established. The fine orchards and vineyards amidst which the prosperous looking farms were ensconced testified to the fertility of the soil and the abundance of water. Bāsh-engiz lies in a gap about a mile wide which separates a gravel-covered plateau, contiguous with the glacis of the hill chain, from a small isolated peneplain about forty feet high stretching westwards and falling off in steep cliffs on all sides. It seemed clear to the eye that this peneplain is but a continuation of the plateau and the Sai glacis behind it, and that the wide gap which now separates it from the latter was carved out by a branch of the Konche-daryā which at an earlier period cut its way through at this spot and deposited its alluvium all over the plain of Kara-kum.

Canal from Konche-daryā.

The canal which winds round the foot of the plateau and then passes on through this gap towards Kara-kum thus in reality merely follows an earlier river-bed. It was small until it was enlarged in 1900 to serve the newly colonized Kara-kum as well as Shinega. Its discharge as measured at the latter place amounts to over 200 cubic feet per second, and this could be greatly increased by taking off at the canal head above Korla more of the superabundant supply of water in the Konche-daryā, which now flows past the town and after passing through the marshy basin of the Boto-köl west of the Korla oasis meanders in a wide semicircle round to Konche-mazār

[14] See *Serindia*, iii. pp. 1199, 1226 sq.

[15] Cf. Chavannes, *Anc. Khotan*, i. pp. 543 sq. For a mention of the 'Iron Gate' in the T'ang Annals, see also Chavannes, *Turcs occid.*, pp. 7, 304.

[16] This is the form of the name as I heard it, not *Shinalga* as printed in *Serindia*, iii. p. 1230, note 1.

(Map No. 21. D. 2) and the 'new town' of Kara-kum.[17] Along the existing canal and within the ancient river-bed stretches a broad strip of good grazing; crossing this and the gravel-covered plateau above it we reached Korla town on March 30th, after covering some nine miles.

## LIST OF ANTIQUES EXCAVATED OR FOUND AT RUINED WATCH-STATIONS BETWEEN YING-P'AN AND KORLA

### OBJECTS EXCAVATED AT WATCH-STATION Y. I

Y. I. 01. **Wooden awl (?) handle**; cylindrical, carefully smoothed, with oblong hole in one end for insertion of tang. Small hole for suspension string, pierced internally through handle near other end. Length 3¼", diam. 9/16".

Y. I. 02. **Iron plate, with loop** carrying small ring-handle (found in loophole); suggests a sword sling or something akin. Plate thin, roughly oblong, narrowing at top to form long tongue of almost equal length, which was bent over rim and down behind. Ends of iron loop, carrying ring, were then driven right through plate, vessel wall, and tongue, from outside, and flattened out on inside, holding the whole together.

Upper part of plate bulges slightly, as fitted to rim. Small rivet-hole at top. Rusted, but intact. Plate (outer side) 2¼" × 2", diam. of ring-handle ⅞". Pl. CX.

Y. I. 03. **Fr. of wooden firestick**, 'female', with part of charred 'hearth' at one end. Oblong in section, large size. 2⅞" × 1" × ⅝".

Y. I. 04. **Remains of woven woollen shoe**, of type Y. II. 010, &c. Frs. only of plaited toe-band, &c. Gr. length 5¼".

Y. I. 05. **Misc. frs. of silk and woollen fabrics**; buff and cream, plain weave. Gr. M. *c.* 6".

Y. I. 06. **Fr. of bamboo arrow-shaft (?)**; broken both ends; charred. Length 3⅛".

Y. I. 07. 08. **Cherry wood stick** (found in loophole), in two pieces (now joined); a hole drilled through thickness at each end with axes at right angles to each other. 22" × ⅝".

Y. I. 010. **Heart-shaped bronze clip**; made of two heart-shaped plates, back and front, joined by three rivets. Back flat; surface of front plate moulded with slightly raised edges and ridge down centre. Length 13/16", gr. width 1", length of rivets 3/16". Pl. CXI.

Y. I. 011. **Fr. of bronze plate**, shield-shaped, with two holes for rivets through lower end. Crumpled. 9/16" × ⅝".

Y. I. 012. **Fr. of bronze pendant**; hollow cone, elliptical in section, with hole through apex; lower edge broken all round, but possibly held jewel.

Sides orn. with: (1) round top, four rows of minute bead orn.; (2) row of seven wedge-shaped sunk panels for inset of jewels or paste, divided from each other by vertical lines of similar bead orn. between plain mouldings; (3) round bottom (broken), row of one very fine, and one larger bead orn. Good work. Surface worn. H. ⅝", base 7/16" × 5/16". Pl. CXI.

Y. I. 013. **Bronze plate**; fr. of buckle. Roughly sq., with one side projecting in blunt angle. From opposite side project two tags (broken off); part of hinge of buckle. Through two back corners are rivet-holes, one containing rivet. 1⅛" × ⅞".

Y. I. 014. **Tongue of bronze buckle**; long, flat, curved in loop at broad end (broken) to fit round bar. 1⅛" × ¼".

Y. I. 015. **Iron arrow-head.** Flat lozenge-shaped head, with ridge down middle of each side, and small shoulder at upper end, from which projects long thin tang. Rusted. Length of whole 5 3/16", head 1⅝" × ⅜" (gr. width). Pl. CXI.

### OBJECTS EXCAVATED AT WATCH-STATION Y. II

Y. II. 01. **Fr. of wooden comb**; large, strong, straight-backed. Length 3¼", depth 2¼". Pl. CX.

Y. II. 02. **Wooden winder (?)**, for thread. Flat strip, well smoothed; one end cut in two short straight horns continuing the long edges; the other in three long pointed teeth, the two outer curving in slightly at end. Piece of string wound round plain central part, and knotted on itself. Length of whole 8⅞", of horns 7/16", of teeth 2¼". Pl. CX.

Y. II. 03. **Bone die**: small cube, with numbers marked by drilled holes as in *Ser.* iv. Pl. LI, M. I. iii. 004, &c.; one opposite six, two opposite four, three opposite five. 5/16" × ¼" sq. Pl. CXI.

Y. II. 04. **Fr. of grass fibre rope**; three strands, closely twisted. Length 9½", diam. ¼".

Y. II. 05. **Fr. of bronze strap-loop.** Elliptical plate, with oblong slit down middle; one side broken away. ¾" × *c.* ⅜".

Y. II. 06–8. **Three frs. of rectang. bronze plate**; smooth surface, rough back, sunk line near edge. Traces of relief pattern on one side. Gr. fr. ½" × ⅜".

[17] It is significant as regards the opportunities which hydrographic conditions would offer in this region for a big irrigation scheme if only the necessary population were available, that whereas the total length of the canal from Korla to 'new' Kara-kum is about forty miles, that of the Konche-daryā between the same points is quite twice as great, not taking into account any minor river bends.

**Y. II. 09. Wooden implement,** prob. plasterer's 'float'. Piece of wood, roughly rectang. oblong; face smooth, back very roughly cut to give sq. raised loop handle. Very rudely made. 10¼" × 2¾" × 2". Pl. CX.

**Y. II. 010–11. Pair of string sandals**; same type as T. XXIII. f. 01 and *Ser.* iv. Pl. XXXVII, L.–A. VI. ii. 0025. Cord sides were continuous all round sole. *010*, complete except for extremities of sole; *011*, middle part of sole only, with cord side, preserved. Well made. Length was *c.* 10" to 11".

**Y. II. 012. Part of sole of string sandal**; same type as the preceding; with remains of cord sides. Sole felted, and caked with soil. 8¼" × 3¼".

**Y. II. 013. Fr. of wooden implement**; flat bar, oblong in section, but with upper edges rounded, and rounded ends. Though one end is hole, ⅜" diam., in which is stout close-fitting wooden peg with conical head to prevent slipping. Peg projects 1" below bar, and is slit up middle till bar is reached; two small wooden pins driven horizontally through it to hold in slit some object now lost. On upper side of bar, 2⅞" from other end, are beginnings of excavation of oblong hole ⅜" × ¼". Bar 8¼" × ⅞" × ⅝"; length of pin 2¼". Pl. CX.

**Y. II. 014. Frs. of painted paper.** Several frs. join and show a Chinese building in front elevation consisting of a loggia (?) with two supporting columns and a central attic story above closed by two doors (or windows) each furnished with a ring handle. Roof ridge of loggia is orn. with knobs.

Under loggia a bell (?) appears to hang to architrave, and to L. a plant in flower-pot. To R., outside loggia a grotesque figure approaches, wearing Chinese soft clubbed hat with tails, and carrying a second flower-pot with plant. R. and L. of attic are cloud scrolls which may be tails of grotesque animals or birds; but if so, bodies are torn away.

Drawing very rough, in red lines reinforced here and there with black; whole punched with holes following many of the lines of drawing. Eyes and mouth of figure are pierced.

Two other frs., which join together but do not fit to above frs., show a grotesque beast rampant, drawn mainly in scrolls but with quasi-human head, long ears and bump on head. Eyes, mouth, and ears are pierced. Above to R. are lines in red which seem to be architectural and are pierced. Near lower edge a horizontal line. To L. a few faint red Chinese chars. The drawing is on roughly made laid paper. Size of paper of main subject, 11½" × 7¾"; lesser subject, 7¼" × 5⅝". Pl. CVII.

## OBJECTS FOUND IN REFUSE LAYERS OF WATCH-STATIONS Y. III–V

**Y. III. 01–2. Two wooden eating-sticks (?).** *02*, complete, shows strip of wood, oblong in section, cut down after length of 3½" to long tapering pin, round in section. *01* shows similar 'handle', plano-convex in section, and pin broken off short. Length of *02*, 7¾". Pl. CX.

**Y. IV. 01. Two frs. of woollen canvas**; very coarse, ragged. Gr. M. *c.* 9".

**Y. IV. 02. Two frs. of vegetable fibre rope**; two strands, somewhat perished. Gr. length 9¼", diam. ¼".

**Y. IV. 03. Tangle of vegetable fibre string**; much decayed. The mass *c.* 4" × 3".

**Y. IV. 04. Tangle of goat's-hair string**; soft, broken. 3½" × 1¼".

**Y. IV. 05. Handle-end of wooden implement** (eating-stick ?), as Y. III. 01–2. Pin broken off. 3⅞" × ⅜" × ¼".

**Y. V. 01. Specimen of reed fascine**; from SE. corner of watch-tower. Length 7".

## OBJECTS EXCAVATED AT WATCH-STATIONS Y. VI

**Y. VI. 01. String sandal,** of type Y. II. 010, &c. Cord sides were continuous round sole. Toe of sole lost. Length (extant) 9".

**Y. VI. 02. Fr. of plain silk**; dark buff, fine weave. Gr. M. 6".

**Y. VI. 03. Fr. of woollen fabric**; coarse plain weave, buff. Gr. M. 7".

**Y. VI. 04. Fr. of stout hair (?) rope**; caked with sand and much decayed. Length 9", diam. *c.* ⅜".

**Y. VI. 05. Fr. of woollen fabric**; loose plain weave; buff; very ragged. Gr. M. 6".

**Y. VI. 06. Fr. of woollen fabric**; buff; close string weave, with double weft giving marked 'grain' to surface. Length 7½".

**Y. VI. 07. Fr. of woollen fabric**; coarse plain weave, loose texture; discoloured buff. Gr. length 4".

**Y. VI. 08. Fr. of plain silk**; fine buff, very ragged. Length *c.* 18".

# CHAPTER XXII

## FROM KORLA TO KUCHĀ

### Section I.—ALONG THE FOOT OF THE T'IEN-SHAN

Reunion of survey parties at Korla.

Korla was the place appointed for the reunion of our four surveying parties, and there I had the satisfaction of seeing in succession Lāl Singh, Afrāz-gul, and Muḥammad Yāqūb safely arrive, after completing their respective tasks. Lāl Singh had succeeded in carrying his triangulation from Singer through the western Kuruk-tāgh to the low hills in the immediate vicinity of Korla. His dogged perseverance had enabled him to overcome at the cost of much toil and privation the exceptional difficulties due both to the very broken nature of that barren hill region and to the adverse atmospheric conditions; for he had encountered a succession of violent dust-storms, such as we too had experienced farther south and as are usual at this season. Had he proved to be right in his identification of the distant snowy peak on the Āltin-tāgh which he had sighted in December from the Altmish-bulak side after enduring great and prolonged hardships, the reward would have been the successful linking I had aimed at, of the T'ien-shan range with the triangulation system of the Survey of India extended by us along the northernmost K'un-lun. Afrāz-gul, after leaving me beyond Ying-p'an, had carried his plane-table traverse from Tikenlik by the main road along the Yārkand-daryā to the Konche-daryā at Kara-kum, and thence had completely surveyed the previously unmapped portion of the river-course up to Korla. Muḥammad Yāqūb had reached Korla before me from Turfān by the high road. After depositing there my Chinese secretary and spare baggage, he had started on the survey he had been directed to carry round the shores of the Baghrash lake. But difficulties in securing transport delayed him and prevented the extension of the work beyond the point where the track coming from Singer down the Āltun-ghol strikes the lake shore (Map No. 25. c. 1).

Irrigation resources of Korla.

My stay at Korla, in the chief Mullah's pleasant garden, was fully occupied with various practical work in connexion with our respective future moves, with the revision of all mapping work done by our several parties since leaving Turfān, &c. Such local information as I gathered has already been utilized in the account given in *Serindia* of Korla and its ancient sites.[1] I have also fully discussed, in the same work, the data supplied by the Chinese historical texts which prove the identity of the Korla tract with the small kingdom of *Wei-hsü* 危須 and its close connexion with Yen-ch'i or Kara-shahr. Since my former visit in 1907 the reclaiming of new land had steadily proceeded. With such an abundance of water for irrigation as is to be found in no other oasis of the Tārīm basin, a great inrush of new colonists from the side of Kuchā and Turfān was said to be kept back only by the tenacity with which the people of Korla were maintaining their claims to all ground capable of cultivation. Nevertheless reclamation was extending rapidly westwards, where the new colony of Ellik-ketman was just being laid out and inspected by the district magistrate of Kara-shahr. The statement made to me by Qādir Bēg, one of the old headmen of the oasis, that the population was officially reckoned at 600 households before the Muhammadan rebellion and now, including the detached settlements to the south, counted close on 3,000, seemed

[1] See *Serindia*, iii. p. 1230.

to be well founded. My host, the 'Ta-Mullah', to give him his current half-Chinese designation, a well-educated man who had studied in Samarkand and had also seen something of India on his 'Ḥāj', was apparently allowed a good deal of authority in the local administration, and this seemed to promise well for the future development of an oasis singularly favoured in its unfailing water-supply.[1]

*Travel programme to Kāshgar.*

On April 6th we set out in three separate parties for the long journey to Kāshgar. A variety of reasons, largely connected with my plans for travels during the summer in the Pāmīr region and for work during the winter in far-off Sīstān and also with the safe packing and dispatch of my antiquities to India, made me anxious to reach it by the close of May. Lāl Singh's task was to keep close to the T'ien-shan and to survey as much of the main range as the early season and the available time would permit. Muḥammad Yāqūb was sent south across the Konche and Inchike rivers to the Yārkand-daryā with instructions to survey as much as conditions would permit of its main channel as far as the northern edge of the Yārkand district. Most of our camels were sent with him under very light loads, in order that they might benefit by the abundant grazing in the riverine jungles after all their privations and before the time came when I should have to dispose of them. I myself felt obliged, in the interests of antiquarian research, as well as in view of the great distances to be covered within the available time—my marches between Korla and Kāshgar aggregated some 938 miles in 55 days—to keep in the main to the long line of oases which fringes the southern foot of the T'ien-shan.

*Record of observations along Pei-lu.*

It is along this line that the chief route for trade, general traffic, and military operations in the Tārīm basin has lain all through historical times, as it does now. Well known as this high road is, it would inevitably give me opportunities for observations of interest, both on the historical geography and the present physical and economic conditions of this northern fringe of oases, the ancient *Pei-lu* of the Chinese. But the rapidity with which, for the reasons above given, I was obliged to move, would not allow of the collection of adequate data relating to the physical aspect of the vast region traversed, beyond those which could be recorded by our surveys. On the other hand, the important ancient remains to be found within these oases or in their immediate vicinity

[1] During my stay at Korla I acquired the small antiques described below from a local trader who stated that he had obtained them from a Loplik as found at the site of '*Merdek-shahr*'. Whether their alleged find-place is identical with the site marked by the ancient fort of Merdek-tim which I examined in January, 1907 (see *Serindia*, I. pp. 452 sq.), I was unable to ascertain.

The small objects are all of a type such as might be picked up on a 'Tati'. But vague information received by me in Charkhlik in January, 1914, pointed to the discovery by Lop hunters of a site also designated as *Merdek-shahr* somewhere near the lower Tārīm since my first visit in 1906. The description given of objects which were said to have been brought from there and sold to Mr. Tachibana suggested the survival of structural remains. I therefore regretted that want of time before I moved into the Lop desert prevented me from making a search for the alleged site.

**Mer. 01. Lapis-lazuli bead,** flat rectang., faceted at corners; good colour. 5/8″ × 1/2″ × 3/16″.

**Mer. 02. Lignite seal;** sq. with large knob at back pierced for suspension. Device Chin. chars., much worn. 13/16″ × 5/8″, h. 5/8″.

**Mer. 03. Ornamental bronze boss;** in form of quatrefoil, convex to centre. Petals form ogee curve to pointed tips, and have raised mid-rib down middle. Hole through centre. Good condition. 5/8″ sq., h. 5/16″. Pl. LI.

**Mer. 04–5. Two bronze discs;** flat, with scalloped edges and circular depression within each scallop. Hole through centre. Diam. 5/8″.

**Mer. 06. Pair of bronze discs;** thin, with scalloped edges, and small repoussé boss in each scallop. Hole through centre. One broken; other shows thin tongue of bronze projecting from one side; possibly ear-rings. Diam. 7/16″.

**Mer. 07. Bronze stud;** short, thick, with blunt end, and flat heart-shaped head having groove down centre. Length 5/8″, diam. of pin 1/8″, of head 3/8″.

**Mer. 08. Pair of bronze buttons;** with round mushroom-shaped heads, and shanks forming loops. Length 7/16″, diam. of head *c.* 3/8″.

**Mer. 09. Pair of bronze buttons;** long heart-shaped heads with groove down centre as Mer. 07, and shanks forming loops as in Mer. 08. One broken. Length 1/2″, gr. m. of head 7/16″.

**Mer. 010. Bronze ring;** irregular rectang. in section. Diam. 9/16″.

had already been examined on different occasions, and at several sites also fully described, by the German, French, and Russian archaeological expeditions which had successively followed this high road. These sites were also seen by me; but a discussion of them must be left to those who explored them. My own account will be restricted to observations which have a wider antiquarian bearing or concern remains that appear not to have been previously examined, and to brief notes on the general character of such areas as were visited away from the main road and have probably not been hitherto described.

Start for Kuchā.

On the morning of April 6th our concentration broke up, and I started with Afrāz-gul and the main camp towards Kuchā. Keeping as long as possible amidst the rich fields near the northern edge of the Korla cultivation, where the young wheat was shooting up and the fruit trees still carried their blossom, we moved parallel to the high road which runs along the foot of the gravel glacis. There could be no doubt that the road coming straight from the defile through which the Konche-daryā debouches must here have followed the same line in earlier times in order to avoid the marshy ground to the south-west, where the canals on the right bank of the river discharge their surplus water and the soakage from the fields collects. It was therefore interesting to observe that near the western end of the continuously cultivated area, beyond the village of Durbil, the remains of a ruined post of decidedly ancient appearance rise about 200 yards above the high road and the canal leading along it. The surviving portions of its northern and western walls, built of stamped clay and some 16 feet thick, still stood at the time to a height of about 26 feet; by their solidity they reminded me of the Limes forts seen at the site of the Jade Gate, T. XIV, and at Shih-êrh-tun (T. XLII. d). The exact size of the small enclosed area could not be determined, as much destruction had been done both by the erosive force of a neighbouring flood-bed from the hills and also by digging for manuring earth. The ruined post might well go back to Han times. But however this may be, I could not help thinking how often these barren black hill-sides, furrowed and scoured by erosion, may have seen Chinese columns pass by on their way to far-off outposts of the Empire, on the Ts'ung-ling or even beyond, whence so few were ever likely to return to their homes.

Ruined tower of *Tim*.

There was direct proof that the ancient high road had run here in the imposing ruined mound known as *Tim*, by a designation for old towers and ruined structures common on the Kāshgar and Khotan side. It was reached after a march of about sixteen miles, and stands near a collection of roadside hovels which is found above a newly established patch of cultivation and forms the usual first stage beyond Korla. The watch-tower, for this undoubtedly it was, had become a shapeless mass of clay and brickwork owing to much digging for manure. On a base or platform apparently of stamped clay, about 53 feet square and still 18 feet high, there rose the remains of a tower now reduced to a height of only about 8 feet and measuring about 26 feet square on the top of the extant masonry. This consisted of bricks measuring 15" × 7–8" × 3", just like those used in the towers of the Ying-p'an–Korla line. Layers of reeds, badly decayed, intervened between single brick courses. The previously mentioned ruined post could be seen from the 'Tim'. Adjoining to the south of the latter, walls of an enclosure built of the same masonry could be traced in places, parts of the western wall still standing to a height of about 5 feet for a distance of 70 odd feet. Much-decayed remains of an eastern wall could be made out at a distance of about one hundred feet from it. Elsewhere the enclosure had been completely destroyed by manure diggers. Potsherds of ancient-looking red ware lay about in abundance, and I felt strongly inclined to attribute this ruined watch-station also to Han times.

Scantiness of water.

Our next day's march to Charchi, about 22 miles off, still led close along the foot of the gravel glacis, but showed no remains suggesting that this was the line which the road followed in antiquity. It appears to me very likely that the ancient route lay farther to the south, and led in a more or less

straight line towards the large oasis of Bugur, thus avoiding the considerable detour made by the present road. This detour is necessitated by the difficulty in obtaining water. This is nowadays to be found only at the little oases of Charchi, Eshme, Chādir, all nestling close to where small streams, fed by springs among the foot-hills or on the lower edge of the Sai, can be used for irrigation before they lose themselves in the scrubby desert. The probability that in ancient times these streams may have carried water to ground much farther south, now reached only on the occasion of rare rain floods, and have made its permanent occupation possible, is suggested by two observations. One is that in 1908, on my quest for the imaginary 'kōne-shahr' of Kōk-darwāza along the Charchak-daryā,[2a] my self-styled 'guides' informed me that the bare clay steppe northward towards Charchi had at times been searched by 'treasure-seekers' for small objects of value laid bare by wind-erosion, just as on the 'Tatis' of Khotan. It was impossible to spare time now for testing the truth of this statement from Charchi, where no local information on the subject was obtainable. The other reason in favour of the hypothesis mentioned above is that due south of Chādir, at a distance of about fourteen miles, lies the old site of Aghrak (Map No. 21. B. 1), on a continuation of the line of patches of old cultivation to which the stream of Yangi-hissār formerly extended. The site falls on the straight line connecting Korla with Bugur, and its examination showed that it had been occupied down to Muhammadan times.[3]

Cultivation at Charchi.

On the way to Charchi the route leading along the foot of the glacis was fringed on the south by a continuous belt of sandy ground with scrub and tamarisk-cones and farther on also with Toghraks. None of the beds descending from the range above contained water, but at the point where one of these debouched we found the well of Yantak-kuduk-langar holding water at a depth of 15 feet. Charchi itself is watered by a small brook rising from springs at a Mazār, some six miles higher up, and carrying about two cubic feet of water per second. This suffices for the cultivation carried on at the tiny oasis by sixteen resident families. Of traces of old cultivation farther south my informants knew nothing.[4]

Oasis of Eshme.

The region traversed on April 8th on the way to the small oasis of Eshme was of a very similar character, the route leading, for most of the way, close to the foot of the Sai along the northern edge of scrub and Toghrak jungle. At the abandoned roadside station of Kuruk-eshme-langar the road strikes the eastern edge of a wide alluvial fan formed by drainage beds descending towards Eshme. A canal from the bed which now carries water to Eshme was said to have once reached this point, permitting of some cultivation, but to have been destroyed by a big flood. The configuration of the ground makes this likely enough, and a well about 8 feet deep shows that subsoil water still finds its way here across the fan. Eshme itself had not yet received its spring water from the 'Eshme-akin', which takes off some five miles higher up from a broad flood-bed

[2a] See *Serindia*, iii. pp. 1232 sqq.

[3] See below, ii. p. 791.

[4] Dr. Herrmann, *Seidenstrassen*, pp. 121 sq., has suggested the location at Charchi of the territory of *Chieh-chih* 捷枝, which a memorial addressed to the throne about 90 B.C. and reproduced by the *Ch'ien Han shu* mentions in conjunction with *Ch'ü-li* as situated to the east of *Lun-t'ai* (Bugur) and suitable for the establishment of military colonies; cf. Wylie, *J. Anthrop. Inst.*, xi. p. 96.

Of Ch'ü-li 渠犂 I believe that I have shown that it can be safely identified, in view of the topographical indications furnished by a special notice in the *Ch'ien Han shu*, with the riverine tracts on the Inchike and Yārkand rivers below Shahyār; cf. *Serindia*, iii. pp. 1236 sq.

For the location of Chieh-chih, which does not appear to be otherwise mentioned, no definite evidence is available. The description given of both Ch'ü-li and Chieh-chih ('The land is broad and fertile, and water and herbage are everywhere plentiful . . . the soil is excellent and might be improved by drains and watercourses') seems to point rather to some riverine tract than to the ground about the present Charchi; this from the comparatively low range above it could never within historical times have received a large supply of water. Possibly the broad belt of riverine jungle along the Charchak river-bed, receiving water in certain years from the side of Kuchā, might be meant; cf. *Serindia*, iii. p. 1233.

(Map No. 20. B. 4), and the only water obtainable since the previous October had been drawn from slightly brackish wells. From local information I gathered that cultivation at Eshme, now carried on by about forty-five families, had completely ceased before the Chinese reconquest and had been since revived only by forcible colonization. An old cultivated area, overgrown by scrub and in places by wild poplars of large size, was said to be traceable over ground extending two or three miles below the present fields. The local belief was that the water-supply had diminished since old times. Yet scanty as it is at present, the limits of the area actually under tillage seemed to be gradually expanding even now, owing to increased traffic on the high road and administrative efforts to facilitate it by stimulating production. It seemed a good illustration of the importance of the human factor in determining cultivation in this region, independently of possible changes in the conditions which affect the water-supply.

## Section II.—THE SEAT OF THE PROTECTOR GENERAL

Oasis of *Chādir.*

Chādir, the next oasis reached after a march of about ten miles from Eshme, is a more considerable place than those we had previously passed on the road from Korla. It is watered by a stream which, as Lāl Singh's survey showed (Map No. 20. B. 4), descends from the high watershed of the range towards Yulduz and at times during the summer brings down big rain floods. These apparently add greatly to the irrigation resources of Chādir, otherwise confined to about one *tāsh* (' stone ') of water, which just suffices to work a single stone for three months in each of the half-dozen mills placed one below the other. Here, too, the population was said to have considerably increased since pre-rebellion times, being reckoned now at 160 households. The greybeards and headmen whom I examined during a halt of a couple of hours knew of no abandoned cultivated area below the present oasis, apart from the previously mentioned site of Aghrak (or Argharak). At that place spasmodic attempts to resume cultivation had been made in recent years by people from Yangi-hissār, and to these I shall refer farther on.

Road beyond Chādir.

Chinese scholars writing in the eighteenth century, after the conquest of the ' New Dominion ', have proposed to locate at Chādir the small territory of *Wu-lei*, which the ' Notes on the Western Regions ' in the Former Han Annals often mention as the seat of the Protector General.[1] Before, however, we examine this identification it will be advisable to record my observations with regard to the two larger oases of Yangi-hissār and Bugur, to which the high road westwards takes the traveller next after leaving Chādir. For about ten miles from the western edge of the Chādir oasis the road led, first through fine open grazing, then through Toghrak jungle, before the easternmost patch of Yangi-hissār cultivation was reached at the Mazār of Kara-chacha-atā. We had to cross three more miles of scrub-covered ground and a deep-cut bed said to carry floods at times as far south as Aghrak, before we arrived at the area of continuous tillage. It looked very rich and smiling, with plenty of fine old trees along the main road and in the Bēg's or Shang-yeh's orchard where we camped.

Oasis of *Yangi-hissār.*

Yangi-hissār is undoubtedly an oasis of old date, but the reclaiming of new land is slowly but steadily proceeding. According to the statements that I collected, the oasis, including the outlying villages of Manjuluk to the north-east and Kara-kum to the south, now comprises about eight hundred households, a figure which agrees well with the extent of its permanently cultivated area as shown by our surveys in different directions. In addition to the area under regular tillage various pieces of land in the jungle belt to the south are periodically cleared and sown, when specially heavy

[1] Cf. Wylie, *J. Anthrop. Inst.*, xi. p. 95, note 3.

rain floods in the spring or early summer encourage the venture. Here, too, reliable evidence pointed to a great increase in the population since the re-establishment of Chinese rule, before which only two hundred families were officially recorded.

The importance of Yangi-hissār is increased by the fact that a route leads from it across the high range northward to the Yulduz plateau at the head of the Kara-shahr valley. It was stated to be the first practicable route east of Kuchā to the plateau, and to be much used by Mongols taking supplies from the oasis to their grazing grounds. The pass crossing the watershed was said to retain snow all through the year; but these hardy Mongol customers, I was told, find it practicable even during the winter months. Thanks to the arrangements I was able to make at Yangi-hissār, Lāl Singh after my departure succeeded in surveying this route (Map No. 20. A. 4) up to the secondary pass known as Kara-dawān, about 11,800 feet in height, where heavy and soft snow stopped progress. The abundance of conifer forest which he observed at the head of the valley suffices to indicate the moister climate prevailing on this portion of the T'ien-shan, and this again accounts for the more plentiful supply of water which the valleys descending from it supply to the oases of Yangi-hissār and Bugur. Route from Yangi-hissār to Yulduz.

The local information readily offered at Yangi-hissār indicated the existence of ancient remains only at two points—at Ak-tam to the north of the oasis and at Aghrak, also known as Pīkhan, to the south-east. In order to save time and cover as much ground as possible with our plane-tables, I arranged for Afrāz-gul to visit the latter place and then to take the high road to the town of Bugur. I myself proposed to proceed to Ak-tam and thence gain Bugur through Tārlak and the northern portion of that large oasis. As regards Aghrak, it may at once be recorded here that Afrāz-gul found there a small and roughly built enclosure of earth ramparts, much decayed through moisture and resembling the circumvallation examined by me at Lapār south of Bugur.[2] An old cemetery close by was found to contain graves undoubtedly Muhammadan in character; thereby proving the occupation of the spot down to medieval times, if not later. Indications of abandoned cultivation, much of it of quite recent appearance, were found over portions of the country traversed. This confirmed statements made both at Chādir and Yangi-hissār that land around this old *tārīm* had again been brought under occasional tillage during the last twenty years or so. The remains seem of interest only as suggesting the possibility that the high road from Korla to Bugur followed in ancient times a more southerly and hence more direct line than the present one. If so, the assumption would be justified that the old route had since become impracticable for traffic owing to increased difficulty in obtaining water. Old cultivation at *Aghrak*.

Proceeding from the Bāzār of Yangi-hissār to the north-west my route to Ak-tam took me first through fields and then over gravel Sai along one of the several canals which carry water from the Yangi-hissār stream to the western portion of the oasis.[3] After proceeding four miles we came to the western bank of its well-defined flood-bed, here about half a mile in width. The banks rise here fully eighty feet or so above the actual level of the stream and showed a succession of six terraces, clear proof of the gradual shrinkage of the volume of the river that once filled the bed. We passed the point where the Yangi-hissār canals take off, less than a mile farther up, and about five hundred yards beyond this found two groups of small ruins, badly damaged and decayed, on the higher terraces above of the western bank of the stream. Route along Yangi-hissār stream.

On the second terrace from the top of the alluvial fan of gravel, the remains of walls of a small rectangular structure, built of bricks, 15" × 8¼" × 4" in size, survived to a height of about 2 feet. Ruins at Ak-tam.

[2] See below, ii. p. 793.

[3] Through a draughtsman's mistake which escaped attention, two canals running parallel to each other from the common head below Ak-tam have been wrongly shown in Map No. 21. A. 1 as if forming the banks of a river branch.

About 45 yards to the south-east I found a low and shapeless mound marking a completely destroyed structure about 18 feet square which may possibly have been a Stūpa base. Some 11 yards farther off in the same direction and quite close to the edge of the terrace I traced the foundations of a larger structure. The walls, built of stamped clay, had on the east been partly carried off by the fall of the terrace edge. Two fairly large apartments could still be made out here. Some refuse outside containing reed-straw suggested that the place had served as quarters. At a distance of about 20 yards to the south and on the next lower terrace stood the remains of a rectangular structure showing walls 2 feet 8 inches thick and measuring 26 feet by 22 within. The walls, built of bricks of the same size, stood to a height of 4 or 5 feet only, and nothing remained inside the structure. A row of four low mounds, each about 12 feet across, standing in a row to the south and clearly representing the bases of little Stūpas that had been completely demolished, suggested that the rectangular structure had once served as a shrine. The position occupied by these ruins in relation to the canal head close by left no doubt in my mind that they were the remains of a Buddhist sanctuary which had served as a place of pilgrimage and worship at this *su-bāshi* of Yangi-hissār, just like those at the heads of the main canals irrigating other oases from Khotan to Turfān.[4] Unprotected by sand or heavy accumulation of debris and in close vicinity to the cultivated area, these modest ruins had evidently long ago been again and again burrowed into by treasure-seekers. Nothing was left here for the excavator, nor did our search of the surrounding area yield any datable relic.

Volume of Yangi-hissār stream.

Before leaving I descended over three more terraces to the stream below, which here washes the foot of vertical cliffs composed of layers of clay and rubble. The water from the mountains was said to have arrived only five or six days ago: yet the stream already carried over 41 cubic feet of water per second, and a rapid increase was expected. The regular discharge of *ak-su* from this stream during the later spring and summer was variously estimated at 10 to 15 *tāsh*, which is more than enough to irrigate the present cultivated area. Before its arrival a sufficient amount of *kara-su* is available from springs situated in the bed of the Yangi-hissār-akin and where smaller drainage beds debouch on either side of it, as well as from springs within the oasis itself to the south of the high road. Judging from the volume measured in the stream at a time when the melting of the snows on the higher portions of the range can scarcely have started, I am inclined to believe that the valleys which feed it with their drainage extend farther into the mountains than is indicated by Lāl Singh's plane-table sketch reproduced in Map No. 20. A. 4.

March to Bugur oasis.

From Ak-tam we turned to the west-south-west and having skirted the extreme north-western extension of Yangi-hissār cultivation above the village of Mālu made our way along the foot of the stony glacis of the hills. The plentiful scrub and jungle through which we passed from time to time or sighted to the south in the course of an eighteen miles' ride to the north-eastern corner of the Bugur oasis, showed plainly that moisture is also brought to this area by smaller drainage beds between the rivers of Yangi-hissār and Bugur. From Tārlak, the first village reached on the Bugur side, we turned to the south and had to cover some fifteen miles more before reaching the small town of Bugur, the head-quarters of the district. Almost the whole of the way lay through well-cultivated land. The Kizil river, to which this large and fertile oasis owes its existence, carried at the time only spring water, or *kara-su*, where we crossed it below Tārlak. Such water as was coming down from the melting snows of the mountains was being caught higher up and turned into canals. The marshy and deep-cut bed was there over 300 yards wide, and the greater part of it was said to be filled when the *ak-su* from the snows arrived. The large volume then carried by the Kizil-daryā of Bugur is proved by the wide extent of the Kök-chöl marshes, into which

[4] See *Anc. Khotan*, i. p. 189; *Serindia*, iii. pp. 1151 sq., 1155, 1238; above, i. pp. 69, 167; ii. p. 751.

it empties itself some fifteen miles below the town, and which I had passed in January, 1908, on my first visit to Bugur from the side of the Inchike river.

The information I was able to collect during a day's halt at Bugur usefully supplemented the indications furnished by our survey with regard to the extent and importance of the oasis. The district or *hsien*, of which the head-quarters are placed at Bugur-bāzār, and which the Chinese administration knows by the ancient name of *Lun-t'ai* 輪 臺, was stated to include altogether about four thousand households. The district comprises all the settlements on the main road from Charchi to Bugur, Chuk-tam beyond Laisu (Map No. 17. D. 1) marking the boundary towards Kuchā. As the small oases to the east already described do not contain much more than a thousand families altogether and no cultivation is carried on elsewhere, it is clear that Bugur itself holds probably well over two-thirds of the whole population. This agrees both with the proportionate extent of the area shown by our survey as under cultivation and with the information I had previously received at the smaller oases. But while reclamation of new land seemed to have made considerable progress in recent years in those smaller oases, Bugur itself appeared to be nearing the limits set by the available irrigation resources. In fact, to the south our routes at several points touched ground where cultivation had been abandoned in recent times owing to the salinity produced by inadequate drainage. The absolute flatness of the land there, as it presented itself to the eye, sufficiently accounted for the latter fact. District of *Bugur*.

The only two ancient sites of which I heard at Bugur still capable of being reached by water from the Kizil-daryā both lie in this direction. An examination of them showed that neither contained remains of pre-Muhammadan times. The 'kōne-shahr' of Lapār, which I myself visited, was found to lie nearly four miles beyond the southern edge of the present cultivated area, which here extends to almost three miles from Bugur-bāzār. On the perfectly level ground covered with thin scrub it was easy to recognize abandoned fields; small tamarisk bushes were growing on them, but had not yet had time to form the usual cones. Farther on the soil along the dry canal that we followed was increasingly covered with *shōr*. The 'old town' here consisted of a circumvallation, roughly 300 yards square, with earth ramparts irregularly aligned and for the most part so much decayed that a height of only 10 to 12 feet remained. On the western face, which had suffered least and where the top still rose to about 18 feet, it was possible to make out that rough lumps of clay had been used in constructing the rampart, with thin layers of brushwood at intervals of about 3 feet. On the top, 22 feet wide here, there were remains of a parapet built in the same rough fashion and about 3 feet thick. The irregularity of the plan and the careless construction suggested that the circumvallation dated from Muhammadan times. No structural remains were traceable within, only refuse heaps of considerable extent pointing to prolonged occupation; but so far as I could get them searched they were found to contain only much-decayed stable refuse, animal bones and the like. That this 'kōne-shahr' could not be of altogether late date was suggested by the many places where 'treasure-seekers' had burrowed indiscriminately into ramparts and rubbish-heaps. 'Kōne-shahr' of *Lapār*.

Afrāz-gul, whom I sent from Bugur to proceed to Kuchā by a desert track leading past a dry branch of the Inchike-daryā, found a ruined circumvallation of exactly the same type at a distance of about 11 miles from Bugur-bāzār (Map No. 21, A. 1). It is known as *Koyuk-shahr*, and its ramparts, also much decayed, measure approximately 260 by 240 yards outside. On a natural terrace within he found an abundance of human bones, suggesting a Muhammadan burial-place. About three miles farther south he noticed abandoned cultivation at a place known as Kara-kachin and not far from a channel carrying water from springs below Bugur. That this channel is not likely to have been made very long ago may safely be inferred from the fact that Afrāz-gul found Cultivation south of Bugur.

the small colony of Öch-toghrak occupied by Bugur cultivators and receiving water from the same channel still farther away to the south. The above observations and the information I obtained at Bugur suggested that cultivation could even now be considerably extended to the south if over-irrigation from the supply of *ak-su* were prevented and adequate drainage below Bugur-bāzār provided. At the same time the moisture which the soil all over this area receives from the overflow of canals and through periodical inundations from the Kök-chöl marshes might explain why ancient occupation, if it extended so far, has here left no remains above ground. Conditions here, as well as below Kuchā, were altogether different from those to be found along the southern edge of the Taklamakān.

Identification of *Lun-t'ai* and *Ch'ü-li*.

It appears desirable to record here in some detail such data as I was able to gather, on a necessarily rapid passage, with regard to present conditions and natural resources in these three oases of Chādir, Yangi-hissār, and Bugur, because a comparison of them may help us to arrive at some reasoned conclusion on a question of historical topography—I refer to the location of the ancient territories that the Han Annals mention by the names of *Lun-t'ai* and *Wu-lei*. Lun-t'ai 輪臺, which modern Chinese scholars identify with Bugur, does not figure in the special notices which the 'Notes on the Western Regions', in Book XCVI of the Former Han Annals, devote to different territories of the Tārīm basin and adjoining parts; but it is mentioned there several times in connexion with the earliest phases of Chinese political expansion into that region. In a passage to which I have repeatedly had occasion to refer before, we are told that immediately after Li Kuang-li's successful campaign against Farghāna (101 B. C.) 'military posts were established from place to place from Tun-huang westwards to the Salt Marsh; there were besides in the region of *Lun-t'ai* and *Ch'ü-li* several hundreds of military colonists; an imperial commissioner was placed [there] to direct [these men] and to protect [their cultivation] in order to meet the needs of envoys sent to the foreign countries'.[5] *Ch'ü-li* 渠黎 receives a separate notice in Book XCVI of the *Ch'ien Han shu*, and the indications there furnished have enabled me to demonstrate, as I believe conclusively, that Ch'ü-li must be identified with the area comprising the riverine tracts between the Inchike and Yārkand rivers from below Shahyār to the Konche-daryā.[6]

Notice of *Ch'ü-li* in Former Han Annals.

We hear of Lun-t'ai again in the notice in the *Ch'ien Han shu* on Ch'ü-li where a memorial addressed to the Emperor Wu-ti about the year 90 B. C. is reproduced:[7] 'From ancient Lun-t'ai eastward, Chieh-chih and Ch'ü-li are both ancient States. The land is broad and fertile, and water and herbage are everywhere plentiful. There are about 800 acres of arable land. The climate is genial, the soil is excellent, and might be improved by drains and watercourses.' After referring to the means by which a sufficient supply of food-stuffs could be secured to meet Chinese requirements, it is suggested 'that military colonies might be placed at ancient Lun-t'ai and eastward, and three Deputy Protectors be appointed, to divide the defence of the country between them'. Among the useful results likely to result from this proposal it is mentioned that among the indigenous people those apparently leading a semi-nomadic life 'would tend towards the cultivated fields; and following their original vocation of rearing cattle, they would also clear the irrigated land'. The rescript of the Emperor, also quoted at great length in the same notice, negatived this request 'for troops to be sent to cultivate Lun-t'ai' on grounds clearly indicating a reaction against the 'forward policy' previously pursued by him at the cost of heavy sacrifices.[8] We are told farther on in the same notice that the proposal was subsequently taken up by the Emperor Chao-ti

[5] Cf. Chavannes, *T'oung-pao*, 1907, p. 153, note 2, where the corresponding passage of Ssŭ-ma Ch'ien mentioning the territory under the slightly different name of *Lun-t'ou* 輪頭 is also quoted and elucidated; see also Wylie, *J. Anthrop. Inst.*, x. p. 22.

[6] Cf. *Serindia*, iii. p. 1236.

[7] See Wylie, *J. Anthrop. Inst.*, xi. p. 96.

[8] Cf. *ibid.*, xi. p. 98.

(86–74 B.C.), who appointed 'Lai-tan . . . the heir-apparent of the indigenous chiefship Yi-mŭi . . . Deputy Protector and General, with a commission to colonize Lun-t'ai. The territory of Lun-t'ai is conterminous with that of Ch'ü-li.'[9] Once again the establishment of a Chinese military colony in Lun-t'ai was frustrated; for the king of Kuchā, whose vassal the newly appointed Deputy Protector had previously been and who feared injury to his interests from the new Chinese colony, 'found means to put Lai-tan to death'.

*Lun-t'ai located at Bugur.*

These references to Lun-t'ai, together with a mention in Wu-ti's above-quoted rescript that this territory is situated more than a thousand *li* west of Chü-shih or Turfān, are the only ones I am able to trace in the 'Notes' of the *Ch'ien Han shu* as accessible in Mr. Wylie's translation. They are, however, when taken in conjunction with one another, sufficient to make it highly probable that the Chinese identification of Lun-t'ai with Bugur is well founded. The statement that Ch'ü-li is conterminous with Lun-t'ai of itself necessarily takes us to Bugur; for we have seen that Ch'ü-li must be located on the Inchike and Yārkand rivers south and south-east of Bugur, and the north is the only direction in which the notice on Ch'ü-li does not specify other territories as adjacent to Ch'ü-li.[10] The location at Bugur is in harmony with the mention of Lun-t'ai as lying 'more than a thousand *li* to the west of Chü-shih', i.e. Turfān, and with the objection which the chief of Kuchā entertained to the establishment of a military colony on his border. The reference to the abundant grazing to be found in Lun-t'ai and the pastoral habits of its population is also entirely in keeping with the facts as they are at present; for Bugur commands extensive grazing grounds both to the south towards the Inchike-daryā and in the valleys of the T'ien-shan to the north, and the flocks owned by its 'Bais' were reported to me to be very large.

*Position of Wu-lei.*

We may now turn to the closely connected question of the location of *Wu-lei* 烏壘. This territory is often referred to in the Former Han Annals as the seat of the Protector General (*tu-hu* 都護) controlling the 'Western Countries', and receives a separate short notice in the 'Notes on the Western Kingdoms' in Book XCVI of the *Ch'ien Han shu*.[11] We are told there that 'the city of Wu-lei, the seat of the Protector General, lies 350 *li* to the east' of Kuchā, and that 'Ch'ü-li lies 330 *li* to the south'. The *Ch'ien Han shu* gives bearings and distances of numerous other territories in relation to the seat of the Protector General. But as these in some instances are manifestly discordant among themselves, and as all such estimates as to direction and distances are evidently liable to 'accumulation of error' the farther away the territories are, it will be safest for our purpose to take into account only those recorded for the two neighbouring tracts the identification of which is certain, viz. Wei-hsü and Wei-li. From Wei-hsü, corresponding to Korla, the seat of the Protector General is said to be 500 *li* to the west, while the same relative bearing is indicated for Wei-li, on the Konche-daryā, with a distance of 300 *li*. These indications necessarily take us to the group of oases Bugur, Yangi-hissār, and Chādir, but do not without further consideration permit us definitely to determine at which of them the head-quarters of the Protector General were actually established; for of all three of them it can be correctly stated that they lie to the east of Kuchā, to the west of Korla, and to the north of Ch'ü-li, i.e. the riverine region of the Inchike-daryā.

We may derive some help from a reference to the record of the Former Han Annals concerning

[9] See *ibid.*, xi. p. 99.

[10] The boundaries of Ch'ü-li mentioned are: to the north-east, *Wei-li* (Konche-daryā tract); to the south-east, *Chü-mo* (Charchan); to the south, *Ching-chüeh* (Niya Site); to the west, the river of Kuchā; cf. Wylie, *J. Anthrop. Inst.*, xi. p. 95; *Serindia*, iii. p. 1236.

[11] See Wylie, *loc. cit.*, xi. p. 95. In my quotations I have substituted the translation of the title *tu-hu* as 'Protector General', fully explained by M. Chavannes, *T'oung-pao*, 1907, p. 154, note 1, for that of Governor-General, used by Mr. Wylie.

*Chêng-chi's establishment at Wu-lei.* the events which led to the establishment of a Protector General with head-quarters at Wu-lei. The essential facts were first made accessible by an illuminating note of M. Chavannes, and can now be consulted in Professor De Groot's translation of the biography which the *Ch'ien Han shu* devotes to the chief actor in those events.[12] In 68 B.C. the Chinese commander Chêng Chi 鄭吉 formed a military encampment with Chinese troops in Ch'ü-li and, having accumulated there stores of grain and secured the assistance of neighbouring principalities, used Ch'ü-li as his base for successful operations against Chü-shih or Turfān.[13] These ended with the submission of that State in B.C. 67, and led to the subsequent extension of Chinese influence over the Hsiung-nu tribes to the north-east of it. A final success in that direction achieved by Chêng Chi in B.C. 60 was rewarded by his appointment, as the first Protector General, to the chief political control of the Western Regions. 'Thereupon Chêng Chi determined the middle of the Western Regions, established there a tent residence, and carried on the administration from the city of Wu-lei. From there he subjugated and commanded the States, punished and fought them or kept them at peace by good treatment, and thus the orders of the Han controlled the countries of the West. Thus the work begun by Chang Ch'ien was completed by Chêng Chi.'[14]

*Wu-lei replacing Lun-t'ai.* This interesting passage brings out clearly the important part which Wu-lei played at the time when Chinese political power in the Tārīm basin attained its fullest development under the Former Han dynasty. The use which Chêng Chi had made of the military colony in Ch'ü-li, as his initial base, was but the development of a plan already conceived in 101 B.C. It is scarcely open to doubt that the vicinity of Chêng Chi's original base was a determining factor in the selection of Wu-lei as the head-quarters of the Protector General when he had attained supreme political control. We have seen that during the preceding phases of Chinese policy in the Tārīm basin the plan of establishing a base of control at Lun-t'ai as well as at Ch'ü-li had always been prominent. Now, considering the persistence that is so characteristic a feature in all Chinese political effort, it must seem strange that after Chêng Chi's successful achievements conducted from the same base at Ch'ü-li, Lun-t'ai altogether drops out from the account in the Former Han Annals of the Western regions. The idea thus suggests itself that the territory of Wu-lei may have differed from the earlier Lun-t'ai only by its designation and have itself derived this from the place which the chief representative of the controlling suzerain power had chosen in it for his residence.

*Bugur probable residence of Protector General.* Not being able myself to consult the original historical sources on the point, I must for the present leave the question just raised without a definite answer.[15] But there are two points of a topographical character which deserve to be noted here, both distinctly pointing to Bugur as the probable location for the Protector General's residence. One is the much greater importance which the Bugur oasis must claim by reason of its size as compared with that of Yangi-hissār or Chādir. Its present population is at least three, if not four, times as large as that of Yangi-hissār, while Chādir, at which modern Chinese antiquarians have proposed to fix Wu-lei,[16] can scarcely bear comparison. The population of these oases and the area of cultivated ground which supports it are determined now, as they must have been in the past, by the available irrigation resources. That the proportion between these could have appreciably changed since ancient times is extremely improbable, considering that these oases are situated close to each other, share identical physical

[12] See Chavannes, *T'oung-pao*, 1907, p. 154, note 1; De Groot, *Hunnen*, pp. 205 sqq.

[13] See also Wylie, *J. Anthrop. Inst.*, xi. pp. 107 sq.

[14] Cf. De Groot, *Hunnen*, pp. 206 sq.

[15] Neither Lun-t'ai nor Wei-li are among the territories described in the Later Han Annals or the *Weilio*.

Wu-lei is indeed mentioned in the former as a part of the kingdom of Kuchā which Hsien, the ruler of Yārkand, on his conquest of Kuchā detached and placed under a separate chief. But the passage does not help to settle the question of exact location; cf. Chavannes, *T'oung-pao*, 1907, p. 200.

[16] Cf. Wylie, *J. Anthrop. Inst.*, xi. p. 95, note 3.

conditions, and receive their water-supply from the same mountain range. For meeting the needs of a great administrative centre, its staff, troops, and the floating population that always collects at such places (e. g. at the present Urumchi), Bugur must have offered, in old times as now, much greater facilities than its small eastern neighbours.

Road distances indicated for *Wu-lei*.

The other point is furnished by a comparison of the distances which the *Ch'ien Han shu* indicates as separating Wu-lei from Wei-hsü, i. e. Korla, on the one side and Wu-lei from Kuchā, on the other. The former distance is stated to be 500 *li*, the latter 350 *li*. Now the actual road distances as measured by us on the high road from Korla to Bugur-bāzār and from there to Kuchā town amounted to 107 and 67 miles, respectively. The proportion between these mileages approximates closely enough to that between the figures in the *Ch'ien Han shu*, and would agree with it still more closely if it was possible, in ancient times, to follow a straighter line from Tim westwards.[17] But the proportion of the actual road distances could in no way be reconciled with that of the Han text if Wu-lei were to be located at Yangi-hissār, and still less if at Chādir.[18]

Strategic importance of Bugur.

It only remains to point out that the position of Bugur was excellently adapted from a strategic point of view for the seat of the chief representative of the Chinese Empire holding political and military control in the Tārīm basin. He could, from there, keep watch over the great northern highway along the foot of the T'ien-shan, which then as now was the chief artery of intercourse and commerce in the whole region. Its safety was of paramount importance to the west-bound silk trade of China. Near enough to the Lou-lan route to receive support from the Kan-su bases, the Protector General was in a position to guard those points at which Hun irruptions chiefly threatened to debouch. Political considerations also may well have played their part in fixing the administrative centre away from the much larger States of Kuchā and Kara-shahr, which were capable of offering serious opposition in times of trouble, and yet within easy striking distance of them both. Finally there was the advantage of having safe access on the south to the conterminous territory of Ch'ü-li, organized long before as a base of supplies for Chinese military needs, and thence also to Shan-shan or Lop, commanding the head of that 'southern route' with the protection of which Chêng Chi had been charged before he became Protector General.[19] Conditions in more than one important aspect had changed greatly by the time when full Chinese control was again extended into the western regions under the T'ang. But even then we find the 'Protectorate of An-hsi' governing the 'Four Garrisons' established by A. D. 658 at Kuchā, only three marches west of Bugur.

## Section III.—FROM BUGUR TO KUCHĀ

Start for Kuchā.

On April 12th I set out from Bugur for Kuchā by the high road, while Afrāz-gul with a local guide was sent southward in order to survey the ground along a dry branch of the Inchike-daryā, near which some ruins were reported in the direction of the south-eastern outliers of Kuchā cultivation. I wished myself to follow the high road in order to examine more closely some ruins that I had previously noticed on my passage in January, 1908, but which now seemed of greater interest in view of the observations collected along the ancient route from Ying-p'an to beyond Korla. For over ten miles after leaving Bugur-bāzār the road led through continuous cultivation except where it traversed a stretch of scrubby steppe covered with *shōr* before crossing an old river-bed known as Dinār from the name of a village higher up. Canals taking off from it irrigate the

[17] See above, ii. pp. 788 sq.

[18] For the sake of comparison I may note here that the present Chinese official road reckoning, arrived at as elsewhere in the new Dominion by very rough measurements, puts the distance from Korla to Bugur-bāzār at 520 *li* and that from Bugur-bāzār to Kuchā town at 300 *li*.

[19] See De Groot, *Hunnen*, p. 206.

well-tilled tract of Chompak, which boasts a Bāzār of its own. Then, having covered about four miles more across a bare Sai of stone and gravel, I left the cart-road near the edge of the small scrub-covered river-bed which receives occasional flood water from the small stream of *Lai-su* and is called by the same name, and turned to the south-west to visit the ruins known as *Lai-su-tura*.

Remains of *Lai-su-tura*. They comprise, as seen in the sketch-plan (Pl. 39), a massive watch-tower and by its side remains of a walled enclosure, both of manifest antiquity and situated about half a mile to the south of the road, on ground furrowed by some small shallow flood channels. The watch-tower K. III is remarkably well built of solid masonry, and shows constructive features which clearly suggest that it belongs to the same period as the watch-towers on the Ying-p'an–Korla route. It measures 48 feet square at its foot, where it has a plinth or base about 2 feet wide projecting up to about 8 feet from the ground. The tower still rises to a height of 47 feet, and its top could be gained only with difficulty. The bricks measure 15" × 8" × 3" and are thus identical in size with those used in the towers above Ying-p'an. Many of them bear marks of imperfect burning. The masonry shows thin intervening layers of reeds and is reinforced by a framework of massive posts and rafters exactly as observed in the towers Y. III and Y. IV. A peculiar feature is the presence of small triangular holes on the southern and western faces, at irregular intervals; they can have served neither for loop-holes nor for the insertion of beams, and their purpose is puzzling.

Ruined enclosure at *Lai-su*. At a distance of about 110 yards to the north, lies the south-eastern corner of a much-decayed rectangular enclosure of which the side facing east appears to have measured about 192 yards. On the northern face the enclosing wall is traceable only for about 38 feet and on the southern for about 118 feet. But from the position of a tower now detached which seems to have occupied the south-western corner it appears likely that the original shape of the small fort was square. The enclosing wall on the west has completely disappeared, evidently through the erosive action of a flood channel which passes the ruin on that side. Others have cut through the walls on the north and south. The wall, about 10 feet thick, was built of bricks of the same size as the watch-tower, but does not now rise anywhere more than 4 or 5 feet above the bare clay of the ground. That wind-erosion has helped here to accelerate destruction is shown by small Yārdangs, only 1 to 2 feet in height, which it has carved out over a portion of the enclosed area. The tower, which, as previously stated, probably occupied the inner south-western corner, is built with stamped clay and measures 39 feet square at its foot. It rises to a height of about 26 feet and may have been occupied on its top by a small guard-room. Remains of a brick wall built against its northern foot, and of a fire-place near this, prove that quarters had once adjoined the tower. Stable refuse and remains of fuel lay in heaps against the foot of the tower; some beads and small bronze fragments were also picked up here.

Position of Lai-su post. The position of the ruins and such details of construction as can still be made out strongly support the belief that these remains belong to a fortified post erected at a point which in Han times served as a stage on the road to Kuchā. The present road from Bugur to Yaka-arik, on the eastern border of the cultivated area of Kuchā, lies in a practically straight line along the foot of the glacis that descends from the outermost hills; nor could a more direct route have been followed in ancient times between these two points. The conclusion thus arrived at as to the early date of the Lai-su ruins was fully borne out by the other remains traced farther on along the present road line. That water might still be found at this point is rendered probable by the fact that I noticed marks of abandoned cultivation on a small patch within half a mile of K. III, and that some fields farther up, near the cart-road which follows a more northerly line to avoid a deep-cut 'Yār', were stated to have been actually cultivated for the last few years.

Returning to the road and proceeding along it over bare wind-eroded clay for about two

miles, we arrived at a point known as *Chuk-tam*, where a small mosque marks the boundary between the Bugur and Kuchā districts. Some four hundred yards to the north of it lies a ruined enclosure which seems to represent a watch-post of later times. It is built of rough lumps of clay (*kisek*), and measures, as seen in Pl. 39, about 102 feet by 84 inside. It appears to have been added to an older tower on the south, measuring 20 feet square and built more solidly of bricks measuring 15″ × 12″ × 4″. That this post was occupied in late times is shown by a small Muhammadan cemetery, situated within 200 yards to the west and provided with an arched gateway. It seems that the place once received water from a small brook which rises at the spring of Pichān-bulak higher up near the head of the glacis (Map No. 17. D. 1). We crossed the tiny tail end of it about a mile and a half farther west at a point known as Süzük. Remains of Chuk-tam.

We halted that night at the small oasis of Yangi-ābād, where some eighteen homesteads find support in cultivation carried on with the water received from springs rising some five miles higher up, in a little hollow of the Sai. Early on April 13th I started for the long march which was to carry us to the eastern edge of the large oasis of Kuchā. The first ruin reached across a bare steppe of clay was that of an old watch-tower, K. v, known by the name of Koyuk-tura (Fig. 344). In its present condition it measures 32 feet square at the base, and rises to 29 feet in height including walls, about 4 feet high, which crown the top and enclose a guard's shelter, 13 feet square (see Pl. 39). It looked as if it had been built of stamped clay; but closer inspection showed that this encased an earlier tower solidly built of bricks of the same size as those found at all the ancient watch-stations from Ying-p'an onwards. The usual reinforcement of heavy posts and beams could also be traced within this masonry, and on the eastern side of the original structure the whitewashed plaster facing was soon disclosed by a little clearing. The earlier tower had measured about 18 feet square, and while it was still intact an outer casing of stamped clay had been added, probably with a view to providing a guard-room on the top. No water could now be found nearer than at Chōl-ābād, five miles farther on by the road; but in ancient times the small valleys debouching from the hills on the north, about that marked as Gōr-jilga on the map from Lāl Singh's survey, probably carried surface drainage farther down than they do at present. Chöl-ābād, 'the quarters in the desert', which now serves as a usual halting-place, is but a small cluster of 'Langars' for the accommodation of travellers. Its water-supply, less than one cubic foot per second, is received from springs which issue some four miles off at the mouth of a Nullah. But even this scanty water suffices to create a delightful little patch of green in the surrounding barrenness, with some orchards to give refreshing shade for travellers and with green fields of lucerne to sustain their beasts. Ruined tower of Koyuk-tura. Cultivation at Chōl-ābād.

When we had proceeded about three miles beyond Chōl-ābād, a ruin, about six furlongs off the road to the north-west and not previously visited by me, attracted my attention. It proved to be that of a walled enclosure, K. vi, situated on the southern edge of an eroded clay terrace about 300 yards wide and extending for over 700 yards from east to west. Its position less than half a mile from a dry channel descending from the north clearly showed that water had once been brought here from the same springs which now irrigate Chōl-ābād. I found here an inner rectangular enclosure measuring 57 yards by 48, built into the south-eastern portion of an outer one, as seen in Pl. 39, both correctly orientated. The walls of both enclosures were 4 feet thick and built of bricks, measuring 15″ × 7½–8″ × 3½–4″, and thus of the same size as we had found in the ruined watch-towers along the Konche-daryā and as prevails on the Tun-huang Limes. The wall had in most places decayed to a height of 4 or 5 feet, but still stood to about 10 feet at the south-eastern corner. There a space about 32 feet square, i, had been walled off. Earth and brick debris filled its interior, which, as fragments of charred timber showed, had suffered from a conflagration. Ruined circumvallation W. of Chōl-ābād.

To the north of this, low mounds of brick debris and clay indicated the former position of some quarters. A gate about 18 feet wide led into this inner enclosure from the south at a place which corresponds to the middle of the whole southern face. This suggests that the gate was originally placed there to give access to the whole circumvallation, including the outer enclosure. The inference that the latter was the older is supported by the more decayed condition of the outer north and west walls, in spite of their similar construction. In the north-eastern corner a large refuse heap rose to the present height of the outer wall, here about 4 feet, and on clearing this we recovered, besides pieces of fabrics, four fragmentary Chinese documents, among them two of large size. The writing and paper appeared to me to be of T'ang times; but only competent Sinologue examination, the result of which is not yet available, could throw light on their date. The character and position of the ruin point to its having served as a protected halting-place corresponding to the present Chöl-ābād.

Ruined post, K. VII.

Returning to the road, I examined by its side another ruin, K. VII (see plan, Pl. 39), about two and a half miles distant from the last one. This consists of a small enclosure measuring 22 feet square inside, and raised on a base or platform of stamped clay 16 feet high. The walls were 4 feet thick and built of bricks 18" × 8" × 3", a size somewhat in excess of that in the previously described ruins along this road. The south face has completely fallen, but elsewhere the walls still stand to a height of about 10 feet. From traces of a fire-place in the middle of the northern wall it is safe to conclude that the little enclosure was roofed and meant for quarters. Evidently at a time when the south wall had already fallen a cross-wall had been erected of rough lumps of clay to provide shelter within the portion of the structure that remained standing. There was no definite indication of date here, but the ruin was certainly not of recent origin.

Ruined enclosure of *Tüge-tam.*

About 800 yards to the west of K. VII and just north of the road rises another and larger walled enclosure, K. VIII, known as *Tüge-tam*. This was certainly meant for a defensible roadside Sarai, as seen from the sketch-plan Pl. 39. Its walls, built of rough blocks of pisé, are 5 feet thick and enclose an area 94 feet square; near the north-western and south-eastern corners they still stood to a height of about 13 feet. At the south-eastern and south-western corners small bastions, 12-square, project. Here bricks, 12" × 6" × 3" in size, had been built into the stamped clay, evidently in order to strengthen its cohesion. The gate led through the southern face and was protected by an outer wall of the same construction as the rest, but badly decayed. The plan and rough execution of the little fort pointed to non-Chinese origin. No well or water channel is now to be found near these two ruined posts. But they may well have once received water from the rivulet which some eight miles to the north irrigates the fields of the small village of Ishtala (Map No. 17, C. 1) and thence descends for some distance in the valley that debouches above Tüge-tam. Beyond this point the road leads up a low and bare gravel plateau, and from there, as dusk fell, I sighted once again the green fields of Yaka-arik, the easternmost village tract of the great Kuchā oasis.

Arrival at *Yaka-arik.*

My night's halt there was much cheered by the receipt of a mail thoughtfully sent ahead by Sāhib 'Alī Khān, the Ak-sakāl of the small Indian colony at Kuchā and an old friend made in 1907. It brought the eagerly awaited news from Sir George Macartney that my convoy of antiques had reached Kāshgar in safety and the equally welcome information from the Foreign Department of the Indian Government that the permission applied for on my behalf to travel across the Russian Pāmirs to Samarkand and Bukhāra, and thus towards north-eastern Persia, had been duly granted at Petrograd.

Welcome at Kuchā.

On April 14th an easy march of seventeen miles brought me to the town of Kuchā. Most of the road lay along the line where the bare gravel Sai forming the upper portion of the alluvial fan of the Kuchā river touches the detached northern ends of a succession of cultivated belts. The

canals from which these receive irrigation are fed partly by springs and partly direct from the outfall of the river. It was of interest to note how small was the volume of water carried by these canals as compared with that subsequently measured in the canals from the Muz-art river, which irrigates the principal portion of the oasis. Near the canal of the Öch-kara tract a hearty welcome awaited me on the part of Ṣāhib 'Alī Khān and the sturdy Pathān traders under him. Escorted by them through lively village lanes we reached the pleasant suburban garden, near the eastern bank of the river and not far from the town, that had been secured from the Qāzī of Kuchā as my camping-place and temporary base at the head-quarters of the district.

After this summary account of the region crossed on our journey from Korla to Kuchā it still remains for us to consider the itinerary describing the route between the two places as it ran in T'ang times.[1] M. Chavannes's extract from the *T'angshu*, Chap. XLIII. b, renders it as follows: 'After leaving *Yen-ch'i* (i. e. Kara-shahr) 焉 耆, by going to the west, one passes at the end of 50 *li* the defile of the Iron Gates, *T'ieh-mên kuan* 鐵 門 關. 20 *li* farther on one arrives at the town of the military post of *Yü-shu* 于 術. 200 *li* farther on one arrives at the military post of *Yü-lin* 榆 林. 50 *li* farther one arrives at the military post of *Lung-ch'üan* 龍 泉. 60 *li* farther one arrives at the military post of *Tung-i-p'i* 東 夷 僻. 70 *li* farther one arrives at the military post of *Hsi-i-p'i* 西 夷 僻. 60 *li* farther one arrives at the military post of *Ch'ih-an* 赤 岸. 120 *li* farther one arrives at the seat of the protectorate of *An-hsi* 安 西 (Kuchā).' — T'angshu itinerary from Kara-shahr to Kuchā.

In addition to the terminal point of the route, which, as we shall see, can be safely placed in close vicinity to the present town of Kuchā, we can definitely locate also the starting-point and the two initial stages. I have shown in *Serindia* that the 'defile of the Iron Gates', *T'ieh-mên kuan*, mentioned also in the Chin Annals, undoubtedly corresponds to the river defile above Korla through which the Konche-daryā has cut its way from the Baghrash lake into the plains of the Tārīm basin.[2] The distance of 50 *li* indicated by the itinerary agrees closely enough with that from Baghdād-shahri, the site of the ancient capital of Yen-ch'i or Kara-shahr (Map No. 25. A. 1), to the point where the road leading towards Korla enters the eastern end of the defile. The 'town of the military post of *Yü-shu*' can on general topographical grounds be safely located near the eastern extremity of the Korla oasis which the high road reaches after passing through the defile for a distance of about seven miles. — Stations from Kara-shahr to Korla.

Beyond this point we have at present no help for the identification of the successive stages beyond that which the relative distances stated in the itinerary can give. With regard to these it should at once be pointed out that their aggregate length, 560 *li*, distinctly suggests that the ancient highway followed a line shorter than that of the present cart-road between Korla and Kuchā. On this our measurements by cyclometer amounted to a total of 175 miles between the towns of Korla and Kuchā. Reference to the map (No. 17. B, D. 1) will show that from the oasis of Bugur to Kuchā the road now follows what is practically a straight line along the foot of the outermost hills of the T'ien-shan. It is by nature the easiest line for traffic, and the succession of ruined towers and stations met along it from Lai-su onwards, as described below, leaves no doubt that the same line was followed by the ancient highway. — Western portion of route.

The position is different as regards the eastern and longer portion of the road—that between Korla and Bugur. Here the present road makes a not inconsiderable detour to the north, as Map No. 21. A–D. 1 shows, being obliged, in order to keep within reach of water and supplies, to follow the chain of existing small oases all of which lie quite close to where the streams irrigating them debouch from the foot-hills. If we may assume that these streams in ancient times carried their water for some distance farther south into what is now scrub-covered desert—and the areas of old and now — Shorter route W. of Korla.

[1] Cf. Chavannes, *Turcs Occid.*, pp. 7 sq.

[2] See *Serindia*, iii. p. 1228.

abandoned cultivation traced there to the south-east of Yangi-hissār and Bugur, together with the 'Tatis' reported south of Charchi, strongly support this assumption [3]—a distinctly shorter, because straighter, line would have been available for ancient traffic between the ruined station marked by the mound of *Tim* at the western end of Korla cultivation and Bugur.[4] The length of the stage, 200 *li*, indicated between the town of *Yü-shu* and the military post of *Yü-lin* (literally the 'elm grove') suggests that no place of any importance was passed by the road of T'ang times between the Korla oasis and a station somewhere to the south of Eshme or Chādir. This is easily accounted for by the nature of the country through which the assumed direct route line must have passed.

Location of stations W. of Bugur.

It would serve no useful purpose, in the absence of direct archaeological evidence, to propose conjectures about the exact location of the next two stages, *Lung-ch'üan* (the 'Dragon Spring') and *Tung-i-p'i*. That these must be looked for to the east of the present cultivated area of Bugur seems clear. As regards *Ch'ih-an* and *Hsi-i-p'i*, the last two stages before Kuchā, we may allow ourselves perhaps to be guided on the one hand by the proportion of the distances and on the other by the physical conditions that determine halting-places on the line which the road west of Bugur must have followed in ancient times as it does nowadays. If we are right in doing so, either the present small roadside station of Chōl-ābād or the ruined post of Kuyuk-tura to the east of it would suggest itself as a likely position for *Ch'ih-an*. The distance given as separating *Ch'ih-an* from Kuchā, the seat of the An-hsi Protectorate, 120 *li*, is double that which the itinerary shows between *Ch'ih-an* and the nearest post eastwards, *Hsi-i-p'i*, viz. 60 *li*. This same proportion of 2 : 1 holds good, as the map shows, if we compare either the distance from Chōl-ābād to Kuchā with the distance from Yangi-ābād to Chōl-ābād, or the distance from Kuyuk-tura to Kuchā with that from Lai-su to Kuyuk-tura.

[3] Cf. above, p. 789. I had heard in 1908 of such wind-eroded sites with pottery debris south of Charchi being visited by villagers when in search of fuel.

At Eshme, too, I was told of an old *tereghal* traceable at a considerable distance to the south of the present small oasis. This itself was revived by forcible colonization subsequently to the Chinese reconquest after the last Muhammadan rebellion.

[4] The village of *Kōne-ōrtang*, the 'old postal station', shown in the map and about four miles north of Bugur-bāzār, marks the approximate point where the direct route coming from Korla probably passed into the cultivated area of Bugur. As its name shows, it was also the regular stage for traffic before the present district head-quarters were established at Bugur-bāzār.

# CHAPTER XXIII

## KUCHĀ AND SOME OF ITS ANCIENT SITES

### Section I.—THE OASIS IN ITS GEOGRAPHICAL ASPECTS AND THE POSITION OF ITS ANCIENT CAPITAL

Importance of Kuchā.

Before I proceed to describe the surveys and other work which detained me for nearly three weeks within and around the main oasis of Kuchā, I may with advantage offer some general remarks concerning the importance, political as well as cultural, that has attached to the territory throughout historical times. This importance is abundantly attested on the one hand by the notices of Kuchā (*Ch'iu-tzŭ* 龜茲[1]) contained in the dynastic annals and other Chinese texts from Han to T'ang times, and on the other by the number and extent of the Buddhist sacred sites to be found in the district. There is no need for me to review here the records that throw light on the great part played by the territory of Kuchā in the history of the Tārīm basin ever since this first passed within the sphere of China's Central-Asian policy and relations. All the data in Chinese historical texts and Buddhist works bearing upon Kuchā have been collected and critically discussed by Professor Sylvain Lévi; they will be found in the same masterly paper by which he established the identity of the language spoken at Kuchā throughout the Buddhist period with the remarkable Indo-European tongue first discovered through local finds of manuscripts and designated by other scholars as 'Tokhārī B'.[2]

Buddhist remains of Kuchā.

Nor can I attempt to describe here all those numerous, and even in their ruined state impressive, remains which illustrate the flourishing conditions of Buddhist religious establishments in Kuchā and the ample resources of the population that maintained them. The conspicuous ruins of Buddhist temples and monasteries at the sites of Su-bāshi and Duldul-okur, the extensive series of cave-shrines, decorated with fine wall-paintings, to be found at Simsin above Kīrish, at Kizil-kāghe, and at the 'Ming-ois' of Kum-tura and Kizil had already been systematically explored by German and French expeditions under Professors Grünwedel and von Lecoq and M. Pelliot respectively, before my first visit to Kuchā in 1908. Archaeological work on a lesser scale had also been carried on in the district by M. Berezowsky under the auspices of the Russian Imperial Academy. I made as full an inspection of these interesting sites, both on my second and third journeys, as the short time I could spare for Kuchā rendered possible. But for an account of them and of the numerous and varied remains, of archaeological, artistic, or philological interest, that have been brought to light there, I must refer to the important publications of Professors Grünwedel and von Lecoq and to the comprehensive report which may be hoped for of M. Pelliot's carefully conducted excavations.[3]

[1] Variants of the Chinese form of the name are *Ch'iu-tzŭ* 丘茲, *Ch'ü-tzŭ* 屈茲, or *Ch'ü-chih* 屈支; cf. Chavannes, *Turcs occid.*, p. 114; S. Levi, *J. As.*, 1895, II, p. 303.

[2] See Sylvain Lévi, 'Le "Tokharien B", langue de Koutcha', *J. As.*, 1913, Sept.–Oct., pp. 323–380.

[3] See Grünwedel, *Altbuddh. Kultstätten*, pp. 7 sqq., 181 sqq.: *Alt-Kutscha*; von Lecoq, *Buddhistische Spätantike*, i–v, *passim*. MS. finds resulting from M. Pelliot's excavations at Kuchā sites are treated by MM. S. Lévi and Meillet, in various papers; cf. *J. As.*, 1911, I, pp. 431 sqq., II, pp. 119 sqq.; 1912, I, pp. 101 sqq.; *Mémoires de la Société de Linguistique*, 1914, pp. 381 sqq., &c.

Factors of geography affecting Kuchā.

In view of the extensive archaeological work undertaken by the numerous scholars who had preceded me in the area of Kuchā, there was but limited scope for further antiquarian investigation during my own short stay. But I was particularly glad of the opportunity thus afforded of carrying out surveys likely to throw light on certain geographical factors which must have exercised a lasting influence all through historical times upon the economic and political fortunes of Kuchā. The geographical conditions I refer to are of additional interest when they are compared with those affecting the oasis of Khotan. It will be convenient to review these briefly, so far as they result directly from the position of Kuchā in relation to the chief physical features of the Tārīm basin, before I record such detailed observations as I was able to make in the course of my surveys.

Rivers of Kuchā.

Kuchā owes its comparatively large area of cultivable land, and the ample economic resources derived from it, to its situation at the point where two considerable rivers, the Muz-art and the Kuchā-daryā, debouch close together from the T'ien-shan foot-hills into the trough of the Tārīm. The Muz-art-daryā, by far the greater of the two, is fed mainly from the large glaciers which descend from the eastern slopes of the ice-clad Khān-tengri massif, the highest in the whole T'ien-shan system. Before it breaks through the outermost hill range west of Kuchā town in the gorge below Kizil (Map No. 17. B. 1), it passes through the subsidiary basin of Bai (Map No. 12. C, D. 1), containing large stretches of fertile soil occupied by flourishing oases. Owing, probably, to the great amount of sediment which the Muz-art and its several large tributaries deposit here, the wide fan formed by the river where it issues from the basin is covered by a layer of fertile alluvium stretching right up to the point of its outflow above Kum-tura.

Abundant irrigation facilities.

Just as in the case of the two rivers of Khotan, this favourable circumstance greatly facilitates the full use of the abundant water-supply for purposes of irrigation; for where no wide barren glacis of gravel intervenes between the outflow of the river and the belt of fertile soil, many of the difficulties of irrigation, such as loss through evaporation, shifting of channels at canal heads, and similar troubles, are avoided. There is reason to believe that at the present time the irrigation facilities thus assured to Kuchā are far from being completely utilized. But even so it is worthy of note that the area of practically continuous cultivation irrigated from the Muz-art-daryā attains a maximum extent, from west to east, of close on fifty miles, as seen in Map No. 17, while from north to south, if the Shahyār tract is included, it measures over thirty miles.[4]

Irrigation from Kuchā-daryā.

In the case of the Kuchā river, conditions are somewhat less favourable. It, too, is fed by glaciers on the main range towards Yulduz, but the volume of water is far smaller. On May 5th, according to measurements taken by Surveyor Afrāz-gul where the river debouches at Su-bāshi, it amounted to about 320 cubic feet of water per second. The stretches of bare gravel 'Sai' over which the canals taking off at Su-bāshi have to be carried reduce the supply actually available for the cultivated belt of ground east of Kuchā town. The consequent limitation of irrigation facilities is particularly felt in spring. Fortunately, however, recourse is then possible in this area to *kara-su* from springs fed by subterranean drainage, just as it is in the case of Keriya and the smaller oases east of Khotan. Thus the water of the Kuchā river adds to the arable land of the oasis a stretch of ground about twenty miles long and six miles wide, which, owing to its position, could not be reached by irrigation from the Muz-art-daryā.

Positions of Kuchā and Khotan compared.

The importance derived by the oasis of Kuchā from an ample supply of water for irrigation is much increased by the advantages it draws from its position in relation to two dominant features in the geography of the Tārīm basin—the mountain rampart of the T'ien-shan rising above it to the north, and the great desert of drifting sands to the south. We shall readily perceive the

[4] For details of the discharge of the several canals from the Muz-art-daryā, as measured above Kum-tura, see below, ii. pp. 808 sq.

advantages offered by the position of Kuchā in regard to both if we compare the corresponding conditions in the case of Khotan. The K'un-lun range above this counterpart of Kuchā in the south of the Tārīm basin, with its extremely barren slopes and its narrow deep-cut gorges, provides only the scantiest resources for settled or pastoral existence. The few very difficult passes by which the range may be crossed east of the Kara-koram could never have been used for regular traffic. Beyond it extend for many marches the high and barren plateaus of north-western Tibet, where the rigour of the climate precludes human occupation of any kind, and makes mere travel arduous.

Advantages of climate N. of Kuchā.

Far more favourable conditions prevail in the T'ien-shan north of the territory of Kuchā. Agricultural settlements of some size are to be found among the foot-hills (Maps Nos. 12 and 16); mines of copper, lead, and iron attest valuable mineral resources; the presence of conifer forests at the head of several of the valleys draining the southern slopes[5] affords striking evidence of the effect that atmospheric moisture, carried across the range from the north, has produced, by clothing the higher slopes with more abundant vegetation and thus favouring grazing. More important still is the fact that north of the watershed there extends along this portion of the main chain of the T'ien-shan a series of wide lateral valleys—those of Yulduz and of the Tekes and Kunges rivers—which provide not only rich grazing grounds but also, in their lower portions, large areas suitable for cultivation. We know that in Han times these fertile hill tracts were included in the territory of the powerful Wu-sun nation, and that in later times they were always favourite haunts of the great migrating tribes that in succession held the present Dzungaria.

Trade routes across T'ien-shan.

Channels for profitable trade between these attractive valleys and the oases included in the ancient kingdom of Kuchā are provided by a number of passes. Of these the Muz-art pass, situated on the flank of the great Tengri-khān massif, at an elevation of about 11,400 feet (Map No. 11. A. 4), is the westernmost and best known. Others lead from the head-waters of the Kuchā and Bugur rivers to the plateau-like top portion of the Great Yulduz. All of them, though closed by snow during part of winter and early spring, are practicable with laden animals during the rest of the year. These routes provide adequate openings for the trade which is the natural outcome of the abundance of products on both sides of the range. Yet owing to their height, and the narrowness of the valleys by which they debouch southwards, they are far easier to defend against nomadic inroads and domination than the corresponding routes from the north into the territories of Kara-shahr, Turfān, and Hāmī, all farther to the east.

Kuchā protected by riverine belt in south.

The position of Kuchā with regard to the Taklamakān desert in the south is equally favourable. The broad riverine belt of the Tārīm, stretching from west to east, acts as a natural fosse or fence against that advance of the drifting sand with which the proximity of the great dune-covered area of the Taklamakān threatens outlying cultivated areas in the Khotan region, whenever the irrigation of these is reduced from physical or human causes. The width of this riverine belt is considerably increased by the branching beds, not only of the Tārīm, but also of the terminal course of the Muz-art-daryā (see Map No. 17. C, D. 2). This accounts for the ample winter grazing which the flocks of Kuchā find here. Incidentally it may also be noted that the deltaic spread of flood water from this river accounts for that prevalence of subsoil moisture which explains the poor preservation of remains at outlying sites of ancient occupation in the south of the Kuchā area. For the same reason evidence of wind-erosion is very scanty at these sites.

Routes converging at Kuchā.

Among the advantages assured to Kuchā by its geographical situation, special mention must be made of those which the territory has derived since ancient times from being the nodal point of important routes converging upon it from different directions. Kuchā must always have been a considerable trade nucleus upon the great Central-Asian high road which passed through it,

[5] See Maps No. 12. B, C. 1; 16. B. 4.

skirting the foot of the T'ien-shan and linking China with the Oxus region and Western Asia in general. The importance of the main oasis in this respect, apart from its local resources, is sufficiently indicated by the fact that it lies about half-way between Kāshgar in the west and Turfān in the east; or, if we consider the times when the ancient Chinese 'route of the centre' was in use, between Kāshgar and Lou-lan.

Strategic importance of Kuchā.

The strategic importance resulting from these considerations dictated the choice of Kuchā as the military and political centre of the 'Four Garrisons' during T'ang rule over the Tārīm basin.[6] Similarly, in Han times, the Protector General of the Western countries was stationed at Wu-lei, corresponding in all probability to Bugur, an outlier of the Kuchā oasis.[7] During this period, when the region north of the T'ien-shan was still independent of Chinese control, there was an additional advantage in placing the administrative centre near Kuchā; it was easy to watch from this point the several routes leading down from the north, by which barbarian inroads might threaten the main line of communication of Chinese trade and military operations. Finally it should be remembered that the riverine belts of the Tārīm and Khotan-daryā provide the shortest practicable line of access from the great northern high road to Khotan and the other oases south of the Taklamakān, as well as to those of Yārkand and Lop in the south-west and south-east.

Hsüan-tsang's monasteries of *Chao-hu-li*.

Although the Chinese notices bearing upon Kuchā during the thousand years of its history before the advent of Islām are comparatively numerous, they do not furnish us with any direct indication as to the position of the capital of the territory. A clue, perhaps, is afforded by the two Buddhist monasteries, both known by the name *Chao-hu-li* 照 怙 釐, which Hsüan-tsang specially singles out for mention and describes as situated on the flanks of 'two neighbouring hills separated by a river', one to the east and one to the west.[8] If we are right in identifying them with the two conspicuous sites of ruined Buddhist shrines facing each other on the hill spurs of Su-bāshi, between which the Kuchā river debouches on to its alluvial fan, we may look for the position of the Kuchā city of the pilgrim's time in the vicinity of the present town. This lies, as Map No. 17. B. 1 shows, about eight miles to the south-south-west of the southernmost of the temple ruins of Su-bāshi. This position agrees closely enough with the distance and bearing recorded by Hsüan-tsang, who placed the Chao-hu-li monasteries, with their famous Buddha statues, forty *li* to the north of the city.

Position of ancient capital.

The present town, situated close to the western river bank and surrounded for the most part by weak walls of stamped clay, manifestly of modern construction, shows no old remains above ground as far as I could ascertain. But on the opposite side of the river, where lively suburban Bāzārs, stretching along the main roads towards the town, mingle with orchards, fields, and clusters of cultivators' farms, I was able to trace the ruins of a larger and certainly much older circumvallation. Their position, almost due south of the Sū-bāshi shrines and somewhat nearer to them than that of the present town, suggests that they may well mark the site of the walls that enclosed the Kuchā city of T'ang times. As I know of no published account of them, I append a brief record of the rapid survey that I made during my first halt.

Remains of old circumvallation.

Our camp was pitched in Qāzī Muḥammad 'Alī's garden, near the eastern bank of the river, and about a mile above the high road where it enters the town. Proceeding thence eastward for half a mile, I came upon the first extant section of the old circumvallation, of which Maḥsūd, my intelligent old 'Darōgha' and guide of 1908, had told me. It consisted of a rampart solidly built of stamped clay, some 60 feet wide at the base and in its ruined condition still rising to a height of about 18 feet. It maintained approximately these dimensions about 300 yards. Farther on

[6] See Chavannes, *Turcs occid.*, pp. 113, n. 2, and 118 sq.

[7] See above, ii. pp. 795 sq.

[8] Cf. Julien, *Mémoires*, i. pp. 5 sq.; Watters, *Yuan Chwang*, i. p. 62; S. Lévi, *J. As.*, 1913, Sept.-Oct., pp. 356 sq.

its remains were lost in fields, but reappeared in detached segments, and could be traced with a general bearing to the east, though not in a straight line, for a total distance of about a mile (see Pl. 39). At a point in the village lands of Bijak the line of the wall turns sharply to the south, and can be followed practically without a break for over half a mile in that direction, standing to an average height of about 23 feet. Here it is strengthened by small square bastions, also of stamped clay, placed at irregular intervals. Where the eastern face of the circumvallation approaches the high road coming from Yaka-arik and Bugur, it breaks off for some distance; but its remains can be picked up again about 2½ furlongs from the road amongst the orchards of the Kara-dong Mahalla. They were said to be traceable intermittently along a line stretching westwards from this point in the direction of the tower-like structure known as *Pīlang-tura*; but owing to houses and enclosed gardens it was impossible to follow the line.

The imposing ruin of Pīlang-tura, about three-quarters of a mile from the south-eastern corner of the circumvallation, presents the appearance of a massive tower, but gives no definite indication of its original character. It rises on a base of stamped clay to a height of 37 feet, and shows solid masonry of bricks 16 × 8 × 3½ inches in size. It measures 82 feet by 70 at the top, where there are traces of walls enclosing two rooms and of a large platform, as seen in the sketch-plan, Pl. 39. I was unable to form an opinion as to the purpose of the ruined structure, but could not doubt its antiquity. Judging from the position it occupies in the plan of the circumvallation (Pl. 39), the Pīlang-tura cannot be far from the point where the wall turned to the north to form the western face of the *enceinte*. Ruin of *Pīlang-tura.*

The ground here was too closely packed with suburban shops and houses to permit of a search, in the short time available, for the line which the wall probably followed northward. Assuming that it joined the northern face near the point where I first noted the well-preserved section of the latter, we find that the total circumference of the enclosed area is approximately 3 miles and 3 furlongs. This measurement agrees very closely with the figure of 17–18 *li* which Hsüan-tsang's notice indicates as the circumference of the capital of Kuchā.* Taken with what I have mentioned above as regards the position of the circumvallation in relation to Su-bāshi, this curious correspondence in the figures creates a distinct presumption in favour of the belief that the ruined circumvallation dates back to T'ang times, and marks the approximate site and extent of the capital of Kuchā as Hsüan-tsang saw it. Assumed circumference of walled area.

## Section II.—RUINED SITES WEST OF THE MUZ-ART RIVER

On the morning of April 20th I started on a tour with the intention of visiting certain ancient sites which had been described by local informants, interested in the search for antiques, as lying well beyond the south-western and western limits of the present cultivated area of Kuchā. I hoped to be able to investigate the physical conditions connected with the abandonment of ancient settlements in this region, and I was all the more willing to find time for their examination because I could find no reference to these localities in such accounts as were accessible to me of former archaeological explorations. Information regarding them was furnished mainly by Mīr Sharīf, an intelligent native of Namangān in Ferghāna, who had been settled in the oasis for a considerable number of years, and had been employed by M. Berezowsky in the course of his search for antiquities. Mīr Sharīf accompanied me on my visit to the sites described below, and most of the small antiques shown in the subjoined list of purchases were acquired from him. Local information about ancient sites.

* See Julien, *Mémoires*, i. p. 3; Watters, *Yuan-chwang*, i. p. 58. For the approximate equivalence of 5 *li* to 1 mile as deduced from distance measurements in Chinese records concerning Central Asia, cf. *Serindia*, ii. p. 735, with note 28a.

Ruin of *Kosh-tura.*

The first day's march was directed to Dō-shamba-bāzār, the chief market-place of the fertile village tract lying west of that branch of the Muz-art river which, lower down, flows past Shahyār. The road to it, after passing for about six miles from Kuchā town across gravel Sai and bare steppe, brought us to a conspicuous tower-like pile known as *Kosh-tura*. It stands close to the point where the easternmost of the small new canals from the Muz-art river has made it possible to resume cultivation on patches of ground apparently long deserted. This invests with special interest the evidence of ancient occupation afforded by the ruined pile, which still rises to a height of about 54 feet, and shows an oblong ground-plan. It measures, at the present ground level, 95 feet on the northern face and 82 feet on the eastern, the other two sides being badly broken. At an elevation of 25 and 38 feet, respectively, from the ground, the masonry recedes, forming terraces 10 feet wide around a solid mass of brickwork. No trace of any decorative facing of the brickwork survives. Yet the constructive features indicated leave little doubt that the ruin is that of a Buddhist shrine built on the plan of those found at the Turfān sites of Idikut-shahri, Astāna, and Sirkip.[1] The masonry consists of sun-dried bricks, 15" × 12" × 4" in size, mixed in places with flat slabs of hard clay (*kisek*). About 40 yards from the south-western corner another solid pile rises to a height of 36 feet. Here an older structure, built of stamped clay and about 32 feet square, appears to have been enlarged on the south by considerable additions of brickwork, which, however, are badly decayed. This ruin, too, is probably that of a shrine, but no definite indication of its character is traceable on the surface.

Canals on R. bank of Muz-art R.

Three miles farther on, the road brought us to the continuous belt of cultivation south of the village of Kum-tura. When passing through this to the left bank of the Muz-art river, I was able to measure successively the volume of seven separate canals. They take off some three miles higher up, near the small ruined site of Sarai-tam, and supply irrigation to the main portion of Kuchā cultivation stretching east and north of the Muz-art river. These canals are known as the 'üstangs' of Pailu, Chaka, Faizābād, Yangi-toibalde, Kōne-toibalde, Toghache, and Ugen from the names of the chief villages served by them. The volume of water carried by them at the time amounted, on approximate measurement, to 28, 46, 103, 159, 105, 45, and 132 cubic feet per second, respectively. Since our measurements were taken at points comparatively close to the canal heads, the aggregate volume of 618 cubic feet per second may be accepted as representing the total supply of irrigation water then available from the Muz-art river for the lands on its left bank, apart from the 30 cubic feet per second that we had measured in the new canal passing Kosh-tura.

The total thus arrived at agrees very well with the volume which, nine days later, I found being carried by the river where it debouches from the defile above the ruins of Duldul-okur, if allowance be made for the increase due to the progressive melting of the mountain snow at this season. That volume was then about 2,025 cubic feet per second, and of this close on 800 cubic feet were taken up by the two main canals on the right bank, known as the Toksu-üstang and 'Shahyār yangi-daryā', which irrigate the village lands stretching down from the tract above Dō-shamba-bāzār to Shahyār in the south. The third big canal on that side, which serves the canton of Yulduz-bāgh to the west, was undergoing its annual clearance at the time, and was consequently empty. Judging from its dimensions and slope it would have required some 760 cubic feet per second of water to fill it to the depth which, I was told, corresponded to the regular discharge at that season.

Large area capable of irrigation.

The measurements here recorded, approximate as they are, will give some idea of the large area—probably not far short of half a million acres—in the present districts of Kuchā and Shahyār, which existing canals and methods of irrigation enable to be cultivated with water from the Muz-art river. It is difficult to form an adequate estimate of the extension of which the present irrigated

[1] See *Serindia*, iii. Fig. 272; above, p. 613.

area would be capable, in case of a considerable increase in the population and a corresponding development of the canal system, without a thorough expert study of the various factors concerned. It should, however, be noted that the amount of flood water brought down by the Muz-art-daryā and allowed to pass unused over its alluvial fan must be very great. The flood was said to arrive about the last week in May—considerably earlier than the corresponding period in the case of the Khotan rivers—and to spread itself over the whole of the river-bed during June and July. This bed, where we crossed it on our way to Dō-shamba-bāzār, was about a mile wide; but at the time it held only a negligible flow of water, in a channel about 10 feet wide and 2 to 3 inches deep. After the end of May the river was said to become unfordable, and ferry-boats indispensable. I received the impression that, provided increasing pressure of population were to furnish the impetus, and conditions of administration favourable to peaceful development prevailed, the available resources for irrigation would permit of the cultivated area, in any case to the south-west of the river, being extended once more to include the ancient sites I visited in that direction.

Small ruined enclosures to SW. of *Toksu.*

We started from Dō-shamba-bāzār, 'of Toksu', on the morning of April 21st, by the track said to be usually followed by caravans destined for Khotan. Having first crossed a belt of marshy steppe, which separates the Toksu tract from that of Yangi-ābād, we continued along the eastern edge of the latter to the southern end of continuous cultivation. Then, having picked up a local guide in the person of Azīz 'Palwān', a 'Tatirchi' or searcher for antiques, we followed the Khotan route to outlying patches of cultivation near Tāhir Hājī's 'Langar' (Map No. 17. B. 2). Proceeding thence for about four miles across a steppe studded with tamarisk-cones, we reached *Kalmak-shahr,* the first ruin reported. It proved to be that of a small circumvallation, built of stamped clay and about a hundred feet across. Its enclosing wall, standing to a height of 14 feet, showed a thickness varying from 13 to 30 feet at the base. The whole of the interior was filled with soft decomposed clay and revealed no trace of structural or other remains affording an indication of date. The distance separating us from our camp, which, owing to mistaken advice, had been sent to the village tract of Shahīdlar, away to the north-west, prevented our visiting two similar small 'Sipils' or circumvallations, which Azīz Palwān referred to as Ziāratlik and Ot-ketkan-shahr and described as situated close together to the southward. The interior of these also was said to be without structural remains.

Outlying cultivation of Yulduz-bāgh.

From Kalmak-shahr we followed the Khotan track south-westwards to Dāsh-tüghemen, where a mill is worked by a small stream draining a marsh farther north, which evidently receives the terminal discharge from the Yulduz-bāgh canals. Not far from it we came upon neglected fields belonging to Küzlek, the southernmost farm of the Yulduz-bāgh canton; and some 300 yards to the west of its last trees we found the badly decayed clay ramparts of an old fortified post known as *Ak-tiken-shahr,* and measuring about 90 yards square. Here, too, no structural remains were traceable in the soft dust filling the interior. Turning northwards we passed through straggling patches of new cultivation, alternating with stretches of unreclaimed scrubby steppe, and finally reached our camp near the southern edge of Shahīdlar in the dark, after a total march of 27 miles.

Visit to *Tonguz-bāsh.*

On the following morning I left our camp where it stood and proceeded to the south in order to visit the site reported under the name of *Tonguz-bāsh,* 'the boar's head'. For nearly four miles the track skirted an almost continuous belt of new cultivation, where fields had been sown in rotation for the last twenty years or so, but dwellings had only recently been erected. The canal irrigating these fields was found farther on to traverse a steppe covered with low tamarisk-cones, and to extend right down to the vicinity of the site, which was reached after 11 miles' march from Shahīdlar. Within a quarter of a mile of the northern wall of the ruined 'town' I noticed an

abandoned patch of cultivation; it may have dated from the time when, under Yāqūb Bēg's régime, digging for saltpetre was carried on within the ruined circumvallation.

Ruined circumvallation.

This, as the plan (Pl. 40) shows, forms an approximately orientated square, with walls 168 yards long on each side, protected by small bastions of varying size. Both walls and bastions are built of sun-dried bricks, mostly measuring 15 by 8 by 3½ inches; among these are interspersed flat pieces of hard clay or *kisek*. The walls, about 18 feet thick on the average, still rise in places to a height of 18 to 20 feet. The gates leading through the northern and southern faces are protected by short 'curtains', behind which the opening in the main wall is approached through outer courts. In the court at the northern gate the foundations of the walls of several rooms built against the protecting 'curtain' could be traced. Mīr Sharīf stated that, on a previous search, he had come upon several wooden documents in the court to the north-east; but only a fragment of a pottery vessel rewarded our clearing of these rooms. This fragment, Tong. 011, shows, like other potsherds picked up at this site, a fine terra-cotta-like body.

Date of Tonguz-bāsh site.

No structural remains whatever could be seen within the enclosed area. Considerable refuse heaps extend along the foot of the walls to the north and west. Our search could not be carried deep, but it brought to light a child's well-made string sandal, Tong. 02, of a type rendered familiar by finds along the Tun-huang Limes; fragments of ribbed silk, Tong. 04; a mass of raw cotton, Tong. 01, &c. Among the pottery debris, all of fine terra-cotta-like ware, Tong. 08 deserves notice on account of its dark-green glaze, slightly iridescent on both sides, which points to T'ang times or the period immediately preceding.[1a] A paper fragment with Chinese writing, also found here, was too small to afford any definite chronological indication. But on general grounds there is every reason to believe that the circumvallation dates from pre-Muhammadan times, like the ruined shrines in the vicinity to be mentioned later. Tonguz-bāsh is the junction of the routes followed by those who wish to gain the caravan road along the Khotan river from Kuchā town and from the Yulduz-bāgh portion of the oasis. In view of this fact and of the analogous position occupied by the ruined circumvallation of Khitai-shahr (Map No. 17. D. 2) situated on the direct line leading towards Lop,[2] the conjecture may be hazarded that the site is that of a fortified station intended to guard the shortest line of approach to Kuchā from Khotan territory lying southward.

Remains of Buddhist shrines.

At a distance of a little over a mile to the ESE. of the 'town' of Tonguz-bāsh my guides showed me the remains of what they called its 'Būt-khāna'. On approaching it I noticed the faintly marked line of an old canal, about 8 feet wide, raised about 10 inches above the level ground, which here showed signs of having suffered some wind-erosion. Beyond it, badly broken walls scattered, as the rough sketch in Pl. 40 shows, over an area about 130 yards long from north to south mark the position of what were evidently once small Buddhist shrines and monastic dwellings. The structures were all said to have been searched by M. Berezowsky's men, and had probably also since been dug over by antiquity hunters. They were mostly built of sun-dried bricks of the same size as those in the walls of Tonguz-bāsh 'town'; here and there also of stamped clay, into which wooden beams and posts, since decayed through exposure, had been inserted to strengthen them. On the eastern side of the area, there remained the foundations of a small structure of timber and wattle walls, marked *a* in plan, which apparently enclosed two small shrines built back to back. Among completely broken and weathered fragments of decorative wood carving, we here recovered the piece of stucco relief, Tong. 010, showing half a warrior's helmeted head.[3] It had obviously belonged to some such scheme of sculptural wall decoration as is illustrated by the numerous small reliefs that I recovered from the Buddhist shrines of the 'Ming-oi' of Shikchin, near Kara-shahr.[4]

[1a] See below, Mr. Hobson's Appendix *D*.

[2] See below, ii. pp. 820 sq.

[3] For a description see the List below, ii. p. 822.

[4] Cf. *Serindia*, iii. pp. 1191 sqq.

This single relic suffices to establish the Buddhist character of the ruins; but a definite indication of their date is to be hoped for only if the 'finds' previously made here can be traced and critically examined; they may now be at Petrograd or elsewhere.

Walled enclosures to N. of Shahīdlar.

I returned to our camp at Uzun-pichin the same evening, and on the following day's march, which took us northward to Torpak-bāzār, the chief market-place of Yulduz-bāgh, I inspected a series of small sites reported in that direction. The first of these, *Kizil-shahr*, was found to lie about two miles to the WSW., on ground where patches of new cultivation alternated with strips of sandy steppe. Pottery debris of a coarse type gave a Tati-like appearance to the latter, where we came upon the ruins of a walled enclosure. The walls, built of stamped clay and about 15 feet thick at the base, form a quadrangle some 168 feet by 153 (see plan, Pl. 40), and are strengthened by small bastions. Through one of these, on the eastern side, leads the single gate. In places the walls still rise to 20 or 22 feet; but inside, the whole of the ground had been levelled and brought under cultivation some three years before my visit. Neither here nor at a smaller walled enclosure (Pl. 40), about 102 feet square, which lies some 200 yards to the north, could we hope to find any definite indication of date; but the fact that the walls of this second enclosure, built of stamped clay, had decayed into shapeless mounds distinctly suggested their antiquity.

Report of ancient burial-place.

Proceeding northwards we passed, at a place known as *Tōpa-shahr*, some crumbling walls of clay, apparently belonging to abandoned village dwellings, and then reached a continuous area of newly reclaimed land, belonging to the colony of *Wang-yeri*. Here Mīr Sharīf pointed out a small mound, called *Sarai-tam*, as the place from which he, and later M. Berezovsky, had extracted remains of large 'Būts'. There was evidence of much burrowing, which must have completely destroyed whatever structural remains had existed above the level of the ground now brought under irrigation. Judging from Mīr Sharīf's information, an ancient burial-place had evidently existed in the immediate vicinity of the mound. Some twenty years before, and again during Mīr Sharīf's employment by M. Berezowsky, corpses were said to have been dug out here from coffins placed under low vaults of burnt bricks. Gold coins were believed to have been found in these tombs, and this report, whether true or not, would have sufficed to stimulate the exploitation indicated by the hollows pointed out to me. As all this ground has now passed under cultivation, such bodies as then escaped would have certainly since decayed. Azīz Palwān, whose home was not far away, subsequently produced for my inspection a specimen of the burnt bricks found in these tombs. It measured 17 × 12 × 3 inches, and was very hard, which my local informants, perhaps rightly, took for a sign of Chinese manufacture.

Triple ramparts of *Öch-kat*.

From Sarai-tam a march of some four miles, past the scattered farms of Wang-yeri and Öch-kat-mahalla, brought us to the curious triple ring of ramparts to which the latter village owes its name, *Öch-kat* meaning 'the three folds'. The site was approached across a belt of marshy fields, and was found to comprise three earthworks of irregular outline but probably intended to be roughly circular, placed one within the other. The rings formed by these ramparts are not concentric, the distance between the outermost and the next being about 400 yards on the north and 880 yards on the south. The total diameter of the area occupied by the triple earthworks appeared to be little short of a mile. The outermost rampart measured 78 feet at its base, where a drainage channel passed through it, and rose to a height of about 15 feet. The second ring was formed by a rampart about 52 feet thick at the base where we measured it. The third and innermost ring had a diameter of only 68 yards within its clay rampart, which towards the west rose to a height of nearly 20 feet. The spaces within the rings were occupied partly by fields and partly by marshy ground with abundance of tamarisk growth. No structural remains were to be seen, nor was it likely that they would have survived on such ground if they ever existed.

My local informants knew of no finds of antiques ever having been made in this area. The interest of these earthworks lies solely in their plan. This differs strikingly from that of any other of the ancient circumvallations which I have seen in the course of my Central-Asian explorations. In their irregularity and apparent roughness of construction, the triple ramparts of Öch-kat distinctly suggested to me an origin different from that of the walled enclosures examined at ancient sites in the Kuchā territory, or elsewhere in the Tārīm basin. My thoughts naturally turned to such prehistoric earthworks as the 'rings' found in widely separate regions, from England to the Caspian and beyond.

Uncertain origin of earthworks.

Whether the ramparts of Öch-kat are likely to date back to a period anterior to that with which Chinese historical records and extant remains in the Tārīm basin acquaint us, or whether they may be the work of some later invaders less advanced in civilization, it is impossible for me to say. There is, however, a curious notice in the account of Kuchā contained in the Chin Annals which deserves to be mentioned in this connexion. It states that the people of Kuchā 'have a walled town with suburbs, and the ramparts there are triple'.[8] It is impossible to assume that the capital of Kuchā could ever have occupied the position of Öch-kat, were it only for the reason that the text further observes that 'within it there are a thousand Stūpas and temples of Buddha'. But it is certainly interesting to find this particular feature of the defences of the Kuchā capital of Chin times illustrated to the present day by the triple ramparts of Öch-kat.

March beyond Yulduz-bāgh cultivation.

We camped that night two miles off, at Torpak-bāzār, the principal market-place of the Yulduz-bāgh tract, which, together with Chilan and other villages in the westernmost cultivated portion of Kuchā, is now included in the *hsien* or district of Shahyār. On the morning of April 24th we set out for the ruined sites of Tajik and Toghrak-akin, which had been reported to me as the most westerly that showed structural remains. The road leading to them was said to be followed at times by travellers who wished to use the direct route to Ak-su, which crosses the scrubby desert south of the barren hill range that bounds the subsidiary basin of Bai. After proceeding about four and a half miles we reached the edge of continuous cultivation, but patches of newly reclaimed land intervened between strips of steppe for another two miles. There the ruins known as *Kosh-tura* came into view, about a mile to the north of the last fields. We had already passed some ruined enclosures of small size, with walls of stamped clay, near the farms of Shōr-yailak. At Kosh-tura I found a massive tower, 45 feet square at the base and still 34 feet high, built of rough slabs of clay (*kisek*). Some 86 yards north of it stands a ruined platform, measuring about 46 feet by 42 at its base, constructed of the same material but with thick layers of tamarisk brushwood inserted into this masonry at vertical intervals of about 3 feet. This indication of antiquity was confirmed by the examination of the top, about 18 feet from the ground, which appears to have once borne a shrine. Mīr Sharīf stated that, some eight years before, he had seen walls standing some 6 feet above the solid masonry base, and bearing traces of painting. Small fragments of coloured stucco were, in fact, still to be picked up, evidence of the utter destruction that the ruin had undergone. About 60 yards to the east the low remains of a wall, built of stamped clay and tamarisk layers, could be traced for a distance of some 70 feet, all that remained of what seems to have been an enclosure. There was evidence here that wind-erosion had some share in the work of destruction.

Site of *Tajik*.

Moving from Kosh-tura to the west across a clay steppe covered with scanty tamarisk growth, and in places with low dunes, we gradually approached the foot of the bare serrated hill range already referred to; it rises here to a height of about 2,000 feet above the alluvial plain. The site of *Tajik*, reached after a march of a little over six miles from Kosh-tura, lies, as the plan in Pl. 41

[8] See M. Chavannes's translation from the notice in the Chin Annals on Kuchā, in *Anc. Khotan*, i. p. 544; also S. Lévi, *J. Asiat.*, 1913, Sept.-Oct., p. 333.

shows, at the mouth of one of the small barren ravines that descend here from the crest of the range. I was surprised to find, within a hundred yards of the principal ruin, a well holding tolerably fresh water, by the side of a dry flood-bed. Close to the well was a well-preserved small *karaul* or guard post, and a planted poplar and willow tree. The presence of this subterranean drainage from the range explained both the ancient and modern occupation of this otherwise barren spot. The post was said to have been built and occupied for a number of years after the Chinese reconquest in 1877, in order to keep watch on the direct desert route from Ak-su to Kuchā mentioned above.

The ruins of Tajik and those of the Toghra-akin site farther to the west were surveyed between April 24th and 27th. They comprise a much-dilapidated quadrangle, and the remains of a Buddhist sanctuary, situated on a natural clay terrace at the mouth of the valley, and a group of small shrines scattered over low ridges higher up. The arrival of an adequate number of labourers from Yulduz-bāgh by the evening of the second day of my stay enabled me to clear completely the remains of the ruined quadrangle, Taj. I (see plan in Pl. 41, 43). They had evidently been dug into more than once. The structures once occupying its south-eastern and north-western sides had been almost entirely destroyed. But enough remained elsewhere to reveal a certain peculiarity of construction. A low natural plateau of clay had been cut down to a uniform level in the centre, while its rims were left standing to form raised platforms at the sides, or to serve, after excavation, for the lower portions of walls. The latter method had been adopted in the western corner, where the walls of three apartments, partly cut from the natural clay and partly built with flat slabs of clay, still stood to some height (Fig. 353). Ruined quadrangle.

Complete clearing of the debris proved one of these apartments, i, to have been a small Buddhist shrine (see plan, Pl. 43). There was a central niche for an image in its back wall; and traces of wall-painting survived in the two arched passages leading, on either side of it, into the room behind. In i were found the stucco relief head of a Bodhisattva, Taj. I. i. 01, and the wooden right hand, Taj. I. 01 (Pl. LXVI), which had probably belonged to the Buddha figure shown in the Abhaya-mudrā. A Chinese coin found in i could not be identified. The floors in i and in the room adjoining on the west were covered with hard plaster of Paris. No finds were made on clearing. The very ruinous remains some 14 yards off, in the line of the north-western side of the quadrangle, seemed to be those of small shrines, one quadrangular, the other circular. In the area iii, adjoining the shrine i, we discovered three small paper fragments with Kuchean writing. Remains of Buddhist shrine.

The clearing of the rest of the quadrangle brought to light further structural remains in the northern corner. There in room ii we found a Chinese coin, apparently uninscribed; a fragment of thick green glass, Taj. I. ii. 01, from the wall of a vessel, and three large jars of coarse pottery, set in the floor but broken. Numerous fragments of hard plaster from the flooring showed that the other sides of the quadrangle had also once been occupied, probably by monastic quarters; but none of these remained except two small rooms on the north-east, which still showed their floors cut into the hard clay.

The group of small shrines (Taj. II), previously mentioned, occupies two low but steep ridges of clayey rock which rise about 200 yards to the north-east of the ruined quadrangle (Pl. 41) on either side of a little ravine. The shrine II. i (Pl. 43), excavated from the soft rock, consists of a domed cella, 10 feet square, with a passage behind; the cella was approached by openings on either side of the back wall, which once, no doubt, supported an image in relief. Slight traces of painting could be seen where plaster strengthened with reeds still covered the foot of the passage walls. A small fragment of paper with Brāhmī characters was recovered from the sand covering the floor. A more interesting find was a well-preserved wooden tablet of the 'Takhti' shape (Taj. 02; Pl. CXXIII), 13 inches long and 2 inches wide, which was picked up under a slight layer of Group of small shrines.

debris on the slope below this cave. It shows Kuchean writing divided into three sections, both on the obverse and reverse (see App. *G*). String holes prove that it must have been intended to form part of a packet of similar records. Taj. II. ii, another small cave-shrine, had lost almost the whole of its vaulting and front; it contained no passage at the back, only an arched niche. Taj. II. v proved to be a shallow rock recess, artificially enlarged, apparently to form a modest dwelling. The completely ruined shrine, T. II. iii, of which the walls could not be exactly determined, had apparently enclosed a small Stūpa, of which the square base, though broken, still rose to about 2 feet. In this, as well as in the badly decayed cella II. iv, measuring 13 feet by 9½, tiny flakes of leaf gold and minute fragments of painted stucco were all that remained of the internal decorations.

Site of Toghrak-akin.

In view of the scanty nature of our finds, the main interest of the Tajik site lies in the evidence it supplies of the physical conditions that probably prevailed in this region during the period when Buddhist cult was maintained here, probably down to T'ang times. This evidence, however, may more conveniently be considered in connexion with the results of my examination of the neighbouring and closely similar site of Toghrak-akin. Its ruins were found to be situated in a narrow winding gorge, which, as the sketch-plan in Pl. 42 shows, cuts far back into the same barren hill range. The mouth of this gorge, appropriately called Toghrak-akin from a number of large wild poplars which flourish on subterranean drainage at its bottom, is a little under two miles from Tajik. Before reaching it we passed a rather brackish well in a tract where reeds and scrub were growing in abundance; and near the entrance of the gorge we came upon a small canal carrying a tiny flow of fresh water. It marked a recent attempt to tap the subterranean drainage of the gorge by means of a Kārēz, and to cultivate the potentially fertile soil on the alluvial fan farther down. The inadequacy of the water-supply had frustrated this attempt of an enterprising Kuchā landowner, who knew the Kārēz cultivation of Turfān, but not the wholly different geological conditions which there permit of it. Nevertheless this little canal proved that, even now, wells sunk in the dry bed at the bottom of the Toghrak-akin gorge would suffice to meet the needs of such a monastic community as it must have held in Buddhist times, judging from the numerous ruins traced on both sides of it.

Effects of erosion by rain.

Owing partly to lack of time and partly to the state of advanced decay to which climatic conditions, destruction by man, and the extremely friable nature of the rocky slopes had reduced all remains, I was unable to explore thoroughly all the shrines and caves. But the work carried out with the help of a comparatively large number of labourers sufficed to secure clear evidence of the character and date of the site. Ascending the gorge, which for a distance of about 400 yards winds in a generally northward direction, I noted on all sides striking indications of the scouring and eroding effect which rain, rare as it may be, has had on the crumbling slopes of rock, cut up by numerous steep narrow ravines. Owing to the decomposition of the intervening layers of soft clay, the thin, almost vertically dipping strata of sandstone have become exposed, both on slopes and ridges, and this has accelerated the complete decay of any structures once built upon them.

Advanced decay of remains.

A quantity of debris of ancient timber, reduced to a shapeless condition, was found washed down into the miniature cañons striating the slopes. But of the structures to which those materials had originally belonged only the scantiest traces could be found on the crests above. Similarly, the small caves, whether used as shrines or monks' quarters, had in most cases suffered badly through the partial collapse of the crumbling rock walls, or from the mud which rain had carried into them. The extreme softness of the clay surface caused it to give way under our feet whenever an ascent had to be made to the ruins. It is indeed difficult to believe that when this sacred site was in use, and the paths to its sanctuaries and habitations much trodden, the surface could have been quite



351. RUIN OF WATCH-STATION, Y. I ('KURGHĀN'), ON ROUTE FROM YING-P'AN TO KORLA, SEEN FROM NORTH-EAST.



352. TOWER AND ENCLOSURE OF ANCIENT WATCH-STATION, Y. I ('KURGHĀN'), SEEN FROM SOUTH.



353. REMAINS OF RUINED QUADRANGLE, TAJIK.



354. SITE OF JIGDALIK, LOOKING WEST.
Arrow marks position of small cave shrine.

so exposed and rotten. It should be noted in this connexion that on the slopes south of the main gorge I noticed dead roots of scrub which is now completely absent. Possibly the soil received in earlier times slightly more moisture, and consequently enjoyed some protection through vegetation.

Ruin of principal shrine.

The ruin which first attracts attention is that marked I on the site plan (Pl. 42); it is situated on the slope of a small ridge, facing towards the mouth of the main gorge where this takes a turn to the west. It consists of a cave-shrine with a series of four terraces rising above it in steps, with niches cut into the rock to hold images, as shown in the sketch-plan and section (Pl. 43). The shrine holds a cella, 10 feet square, with a passage behind, 4 feet wide, approached by two openings on either side of the back wall of the cella. Both cella and back passage have vaulted ceilings. The tempera paintings of the cella wall had suffered badly owing to fissures in the rock, and to the thinness and rotten condition of the plaster on which they were painted. But on the SE. wall some panels survived, showing seated Buddhas supported by Bodhisattvas, with scenes of forest life above; these were carefully removed, though not without difficulty. Their description must await a later publication, in which they can be reproduced.

Terraces with niches.

The receding terraces on the slope above the cave-shrine held 10, 8, 6, and 4 niches respectively, in ascending order. The niches cut from the sandstone rock varied in width from 2½ to 3 feet. Their depth varied from 2 feet 6 inches to 2 feet 8 inches. Of the platforms extending in front of the niches, the one above the second row was the widest and the highest. The more sheltered portions of the niches still retained parts of the stucco facing; but nothing remained of the images of seated Buddhas which they probably held. In the abundant timber debris which had found its way into the small drainage channels near the foot of the ridge, we discovered no recognizable carving, but on clearing the slopes by the side of the terraces we found, near the eastern end of the widest of them, the fine carved wooden capital T.A. I. 01 (Pl. XV); it measures 12 inches square at the top and is 10 inches high. It lay top downwards under half a foot of detritus. Its excellently carved floral ornaments, recalling a Corinthian capital, are executed in bold chipwork, resembling in style that found on the carved double brackets from ruined dwellings of the Niya site. This capital and the fragment of a turned baluster rail, T.A. I. 02, which was also discovered in clearing the slope by the side of the terraces, may have belonged to a totally destroyed timber superstructure once crowning the narrow eroded top of the ridge. Completely decayed remains of wooden structures, probably also small shrines, were found on a ridge some 170 yards away to the north-east, and on a narrow saddle to the south-east. At none of these points was it possible to determine the ground-plan.

Groups of cave-shrines, T.A. II, III.

Descending from the saddle just mentioned one reaches a row of small caves, marked II in Pl. 42, on the eastern side of the main gorge and at no great height above its bottom. The best preserved of them, II. i (see plan in Pl. 43), proved to have been partially excavated. It consisted of a cella, 14 feet by 11, with an image niche in the rock wall which separates the back of the cella from a passage 6 feet wide. From one of the openings into this passage access could be gained to other passages apparently belonging to another cella, now completely destroyed. Painted panels showing seated Buddhas survived on the ceiling of the cella, and similar poorly executed work on the walls of the adjoining passages. The only find which rewarded the complete clearing down to the floor, which was of burnt brick covered with plaster of Paris, was the bronze ornament T.A. II. i. 01, showing settings for two jewels. The front portions of three smaller caves adjoining to the north had fallen in.

To the east, and about 150 feet above the bottom of the gorge, lies another group of caves, marked III. One of them was a shrine, similar in plan to T.A. I. i, with stencilled diapers of small seated Buddhas on the walls of the cella, and the figure of Buddha in Nirvāṇa coarsely painted

on the ceiling of the passage at the back. Two small caves adjoining to the south had apparently served as monks' quarters.

Large ruined enclosure.

On the opposite side of the gorge, the top of a very steep hillock is occupied by the badly decayed remains of what appears to have been a large enclosure containing the chief monastic quarters. Owing to the precipitous nature of the slopes, a great portion of the walls once enclosing an area about 50 yards by 40 have slid down. No structural features could be made out in the interior, which was completely overlaid by rubbish-heaps and pottery debris. There were indications of burrowing by 'treasure-seekers' along the line of the walls and elsewhere, and systematic clearing, which would have taken days, offered small promise of reward. I turned my attention instead to two groups of small caves, IV, facing each other on a steep little spur to the south of this area. The farther one was found to comprise two little shrines communicating by passages. Complete clearing revealed only traces of painted panels, with small seated Buddha figures. The four caves of the other group were undoubtedly used as quarters, a larger one being joined to a smaller one by a passage, as the plan of T.A. IV. i (Pl. 43) shows. On removing the loose earth which filled these cave-dwellings, we found in the one marked *a* (Pl. 43) two dozen Chinese coins, partly embedded in the flooring. Of these, twenty-one are T'ang issues and three are uninscribed, probably of earlier date. Thus the conclusion, already suggested by the style of the wall-paintings, that the site had continued to be occupied during the T'ang period received definite confirmation before the end of our visit.

Return to Kuchā.

The necessity of making arrangements for Lāl Singh's survey work obliged me to start back for Kuchā on April 28th, in the midst of a violent sand-storm. From Shōr-yailak I dispatched Afrāz-gul to the south-east with orders to survey the ground between Yulduz-bāgh and Khanak-atam, the southernmost settlement of Kuchā to the east of the Muz-art river (Map No. 17. C. 2). He reached Khanak-atam, our rendezvous, in three marches; his observations on the ruins that he passed will be briefly noticed later. I may, however, mention here with advantage what I subsequently ascertained, with his help, with regard to the alleged 'Tatis' beyond the westernmost limit of the present cultivated area on the west of the Muz-art river.

Antiques collected from *Dawān-kum*.

From Azīz Palwān, our guide to Tonguz-bāsh and the minor sites described above, I obtained a number of small ancient objects, mostly of metal, but some of glass and stone, which, as a professional antique-hunter, he had picked up on his visits to old sites. They are enumerated, together with those bought from Mīr Sharīf, in the Descriptive List below. Azīz stated that he had collected most of these small objects from an area of ancient occupation which he called *Dawān-kum*, and which, from his description, was obviously a wind-eroded 'Tati'. The place was known to others by that name, and was situated some distance beyond the westernmost cultivation of Yulduz-bāgh, on the direct desert route to Ak-su. I accordingly arranged, at the close of my stay at Kuchā, for Afrāz-gul to pay a special visit to this area when surveying this route as far as Kara-yulghun (Map Nos. 17. A. 1, 2; 12. B, C, D. 2).

Search for 'Tatis' of *Dawān-kum*.

Afrāz-gul's route report shows that when he left Torpak-bāzār for this purpose on May 10th he had to content himself with a 'guide' who soon proved to be very imperfectly acquainted with the track to be followed; Azīz Palwān had refused to accompany him. At Lampe, some eight miles from Torpak-bāzār, the last cultivated patches were left behind, and two miles farther on he reached wind-eroded ground where, for a distance of about three-quarters of a mile, abundant pottery debris indicated ancient occupation. The guide called this place *Hajelik*, and applied the same name to a similar area about a mile and a half beyond it. A further march of about four miles brought the little party to the tract known to the guide as *Dawān-kum*. No water was obtainable at that camp; nevertheless Afrāz-gul spent a day there, making an extensive search for the alleged site, as shown by his devious route line marked on the map (No. 17. A. 2). The ground proved to

be difficult, owing to thick tamarisk growth, and the search was fruitless. The Surveyor observed no soil subject to wind-erosion. Hence the existence of any ruined site of the 'Tati' type in this region appears very doubtful. Nor did he discover any ancient remains on the long and trying march to Kara-yulghun which occupied the next three days; much trouble was caused by the scarcity of wells, and by their brackish water. The experiences recorded by the Surveyor explain why the desert route between Kuchā and Ak-su, although so direct, is seldom used nowadays, except by men anxious to escape observation.

Ancient route to Ak-su.

This route is probably that described in an itinerary of the *T'ang shu*, translated by M. Chavannes,[6] as connecting An-hsi 安西 or Kuchā with the town of *Po-huan* 撥換 which corresponds to the present Ak-su.[7] It is apparently also the route that Hsüan-tsang followed when, starting from Kuchā, he reached 'the little kingdom of *Po-lu-chia*' 跋祿迦, after crossing a small sandy desert for 600 *li* westwards; for a passage of the *T'ang shu* definitely identifies Po-lu-chia with Po-huan.[8] Hsüan-tsang's *Memoirs* furnish no details about the route; but the bearing and distance agree with the direct desert route, for the distance between the extreme western edge of Kuchā cultivation and the eastern edge of cultivation on the side of Ak-su, marked by the village lands of Jam (Map No. 12. A. 2), is approximately 120 miles. Neither the distance, nor the mention of a sandy desert, can be reconciled with the only alternative route, that followed by the present high road through Sairam and Bai. This is considerably longer and nowhere crosses a sandy desert, as reference to Maps Nos. 17. A, B. 1; 12. A, B. 2; C, D. 1 will show.

T'ang itinerary to Ak-su.

In the itinerary of the *T'ang shu* we find a similar correspondence as regards the bearing and the character of the district, though the particular stages mentioned cannot be located with certainty. We are told that starting 'from An-hsi or Kuchā westwards one passes through the barrier (*kuan*) of *Chê-chüeh* 柘厥 and crosses the *Po-ma-ho* 白馬河 or River of the White Horse', obviously the Muz-art-daryā; '180 *li* farther one passes westwards into the stony plain of *Chü-p'i-lo* 俱毗羅. One passes the salt wells and at the end of 120 *li* arrives at the town of *Chü-p'i-lo*. 60 *li* farther on one arrives at the town of *A-hsi-yen* 阿悉言. 60 *li* farther on one arrives at the town of *Po-huan*.' Here it must be noticed, in the first place, that the total distance indicated, 420 *li*, is considerably less than the 600 *li* recorded in the *Hsi-yü-chi*. Apparently the distance between the entrance into the desert and the 'salt wells' has been omitted.

Road distances of T'ang itinerary.

Allowing for this omission, one can account for the other measurements by the following conjectural locations. The distance of 180 *li*, if reckoned from Kuchā town, would bring us approximately to the westernmost edge of Yulduz-bāgh cultivation, a distance of about 32 miles as the crow flies. The 'salt wells' might well be placed near Afrāz-gul's camp at Shōr-yār (Map No. 12. C. 2), where a spring supplies brackish but drinkable water close to a small stream wholly salt. The 120 *li* thence reckoned to Chü-p'i-lo town would take us to cultivable ground where the map (No. 12. B. 2) shows the small detached oases of Ulūgh-yār, about 25 miles to the west in a straight line. From there to the present 'old town' of Ak-su is about 32 miles in a straight line, a distance somewhat in excess of the aggregate of 120 *li* indicated by the T'ang itinerary to A-hsi-yen and thence to Po-huan. We cannot, however, be sure that the chief place of the Ak-su district, which the 'town of Po-huan' undoubtedly represents, occupied the same position as the present 'kōne-shahr' of Ak-su; and as cultivation is practically continuous from Jam village westwards, a nearer position of Po-huan town, more in keeping with the road measurement given by the itinerary, is conceivable. But in the absence of definite indications the exact location of the town of Po-huan and of the intermediate stage of A-hsi-yen must evidently remain doubtful.

[6] See Chavannes, *Turcs occid.*, p. 8.

[7] For this identification, cf. *Serindia*, iii. p. 1297.

[8] Cf. Chavannes, *Turcs occid.*, pp. 8, note; 120.

## Section III.—REMAINS SOUTH-EAST OF KUCHĀ AND LIST OF ANTIQUES FOUND OR ACQUIRED

Canal head near *Duldul-okur* site.

On April 29th I continued my return march to Kuchā from the north-eastern extremity of the village tract of Ugen. On the way I passed the ruined Buddhist temples known as Duldul-okur, and was able to collect the data already recorded concerning the three large canals which actually take off from the western bank of the Muz-art river below that site, a true *su-bāshi*. Local tradition asserts that in past times the lands on that side of the river were watered by eight canals; and in fact the lines of three more large canals, all abandoned and unmistakably old, were found crossing the narrow strip of bare ground which separates the ruins of Duldul-okur from the present canal heads. Whether there would nowadays be sufficient water in the river to fill these canals, as well as the others, early enough for the needs of irrigation appeared very doubtful.

Mound of *Kotluk-ordu*.

I used my single day's halt at Kuchā on April 30th to visit the large but badly decayed ruined mound known as *Kotluk-ordu*, where Mīr Sharīf and other local informants stated that the famous Bower manuscript and other important texts in Sanskrit and Kuchean, brought to India in 1891 and subsequently edited by the late Dr. Hoernle, had been discovered. The mound is situated about half a mile to the SSW. of the south-western corner of the town and not far from the point where the road leading to Kosh-tura passes beyond the limit of cultivation. I found that it was oblong in shape and constructed of clay, measuring about 54 yards by 32, and bearing at its north-western end what looked like the base of a completely destroyed Stūpa. Here the mound still rose some 20 feet above the level of the surrounding fields. On the east a terrace about 14 yards wide adjoined it on a lower level, and beyond this again could be traced an enclosure, about 44 yards square, marked by low mounds, much decayed. The whole appeared to be the ruin of some large sanctuary; but long-continued digging for earth to manure the fields, and treasure-seeking operations on a large scale, had reduced its remains almost beyond recognition. Another smaller mound a short distance to the south had been even more thoroughly overturned, and was now half buried in sand. It was here that Mīr Sharīf said that he had secured a great haul of ancient manuscripts, when digging with a number of other men about twenty-eight years before. The spoils were divided and sold by them, partly to Afghān traders: through these they reached Captain (now General) Bower and Mr. (now Sir George) Macartney and thus first drew the serious attention of European scholars to the antiquities preserved in the soil of the Tārīm basin.

March to *Khanak-atam*.

A march of over thirty miles on May 1st brought me to Khanak-atam, a small village tract at the southern extremity of the irrigated area on the left bank of the Muz-art river. From here Mīr Sharīf proposed to show me certain ancient sites with which he was familiar, owing to their being within easy reach of some farm land which he owned in the district. The road followed took us, after we had proceeded some three miles, to Ara-buk, the southern limit of the ground capable of irrigation from the Kuchā river. Beyond this point, wide stretches of scrubby steppe alternated with belts of cultivation, mostly narrow, extending along the terminal portions of the main canals which take off from the Muz-art river. In all these belts we heard complaints that the water was inadequate for the land available, and as the adjoining waste ground was stated to be equally fertile, it was easy to realize how different an aspect this area may have presented in former times, when, owing to a larger volume of water in the river, the whole of it may have been kept under continuous cultivation.

Defective irrigation and 'new cultivation'.

As we passed down along the canal, then still dry, which serves the lands of Bostān and Khanak-atam (Map No. 17. c. 2), I was struck by the contrast between the fine large arbours near the scattered farms and the neglected look of the fields. This phenomenon, in a tract which had

evidently long been continuously occupied, was attributed to successive failures of crops, owing to defective irrigation. Yet the inhabitants of this region were loath to abandon it for newly reclaimed and for the time being better served land, such as, curiously enough, we saw next day stretching for about four miles below the last old farm of Khanak-atam. A new canal, made some six years before under the District Magistrate's orders, had caused new cultivation to be started here by a considerable number of colonists. Yet none of them seemed as yet to feel sufficient confidence in the venture to establish homes on the land. This is a significant illustration of that impermanence to which the uncertainty of various factors is apt to reduce agricultural enterprise along the terminal courses of canals in all these oases.

Walled enclosures observed by Afrāz-gul.

At Khanak-atam I found that Afrāz-gul had arrived from the survey he had carried transversely from Yulduz-bāgh across the southern portions of Kuchā cultivation. His observations, recorded on the plane table and in a route report, proved the existence of a series of ruined walled enclosures and watch-towers, now abandoned to decay, in the area stretching east of the Kuchā–Shahyār high road. These remains of small circumvallations, built of stamped clay, all resemble closely those which we examined to the south of Yulduz-bāgh. Rough plans of two specimens from a site known as *Ak-shahr*, near the village of Sai-arik, are reproduced in Pl. 40. As the map (No. 17. B. C. 2) shows, they all lie near existing canals and within easy reach of the present occupied area. Hence they appear to have suffered much, both from decay through moisture and from frequent digging for manuring soil or for 'treasure'. There was little chance of finding datable relics at such ruins, and this made it easier for me to forgo examining them in person.

Circumvallation of *Chong-shahr*.

Instead, I set out on May 2nd from our camp at the last farm of Khanak-atam to visit the ruins that Mīr Sharīf had offered to show me to the south-east. For about four miles our route followed the new canal previously mentioned, which at that time carried nearly 4 cubic feet of water per second, and past the newly cleared fields of the colony it had created. Then the tamarisk-cones in the neighbourhood grew higher, and we saw groves of wild poplars stretching from north-west to south-east. Between these, and at a distance of about nine miles from camp, we came upon the embankment of an old canal following the same direction. It led to a large circumvallation, which Mīr Sharīf knew by the name of *Chong-shahr*. It was formed by an earthen rampart about 10 feet high, enclosing an area of irregular oval shape (Pl. 41). This measured, on the inside, about 340 yards from north-west to south-east, in the direction of the major axis. On the north-west the rampart adjoined an earthen mound about 70 yards across from north to south and about 30 feet high. Refuse heaps permeated with salt spread in places over the interior of this rough enclosure, the age of which remains quite uncertain.

After we had moved about a mile and a half north-eastwards across ground encrusted with soft *shōr*, Mīr Sharīf showed me what he called the 'small town' of the site. It proved to be the ruin of a small post, enclosed by walls of stamped clay about 7 feet thick, and measuring about 38 feet square inside. There were traces of an outer enclosure, also built of stamped clay, with walls running parallel to, but at varying distances from, those of the post. The walls of the latter still rose to 12 or 13 feet in places, betokening solid construction. But here, too, I could find no definite indication of date.

Inundated ground cultivated.

Marching from here for about four miles to the south-east, we arrived at a large depression known as *Tauruk*, which in certain years, at times of flood, receives water from the Shayān-daryā, an easterly bed of the terminal course of the Muz-art river. The bottom of the depression was found to be dry, but a well dug here to a depth of only 2½ feet yielded perfectly fresh water. The fact that this depression had been put under temporary cultivation in the preceding year, and had yielded a good wheat crop, furnished an illustration of a practice widely prevalent along the banks

of the Inchike-daryā, the main continuation of the Muz-art river, and also along those of the lower Tārīm. This practice has distinct antiquarian interest, as I have already pointed out elsewhere;[1] for the Former Han Annals record early Chinese efforts to establish a military agricultural colony in the territory of *Ch'ü-li* 渠黎. This territory comprised the riverine tracts along the lower course of the Muz-art river and the Tārīm to the east of Shahyār.

On the morning of May 3rd we resumed our march to the ENE., and passed more lately inundated ground, still holding fresh water in pools. After proceeding about four miles we reached another rough earthen circumvallation, resembling the 'Chong-shahr' of the preceding day. It was of irregular oblong shape, measuring about 200 yards from north to south; its ramparts rose about 15 feet above the *shōr*-permeated soil of the enclosed area. The abundant grazing afforded by reeds and scrub in the neighbourhood suggested that this and similar circumvallations might have been constructed as places of temporary refuge for herdsmen and their flocks. But once again no indication of date could be looked for.

Remains of *Khitai-bāzār*.

Leaving this salt-encrusted ground and entering a belt of tamarisk-cones, we came upon the well-marked line of an ancient canal, running to the north-east and 22 feet wide at the bottom. After following it for about three miles we reached the site of *Khitai-bāzār*, where Mīr Sharīf stated that he had carried out diggings and had found remains of paper manuscripts. We here found ruins of small structures, mostly of timber and wattle, scattered over a plateau which had apparently been formed by levelling old tamarisk-cones (see plan, Pl. 44). The ruins had been almost completely destroyed, down to the wall foundations, by repeated burrowings, and had previously suffered from wind-erosion. Near the northern end of the area, however, I was able to make out the walls, built of rough slabs of clay, of what had apparently been a small cella, measuring 11½ feet by 13 inside, and surrounded by an enclosing passage. On clearing away some refuse to the east of this, we came upon minute fragments of paper, inscribed with Brāhmī characters; they closely resembled in type a fragmentary manuscript leaf with Kuchean writing which Mīr Sharīf had previously shown me, stating that he had found it at this site. From this archaeological evidence it seems justifiable to conclude that these badly damaged ruins are those of a small Buddhist shrine and the monastic and other quarters once adjoining. They have perhaps been abandoned since T'ang times.

Site of *Khitai-shahri*.

Practical considerations demanded an early return to Kuchā town; I was therefore unable to visit the ruins of *Khitai-shahri*, situated about three miles to the north-east. They had already been examined by Afrāz-gul, on the devious route which he had followed, under my instructions, from Bugur to Kuchā. According to his careful report he had found there an oblong circumvallation, measuring about 270 yards by 156 as shown by the sketch-plan reproduced in Pl. 41. His description indicated a close resemblance between it and the walled enclosure of Tonguz-bāsh both as regards constructive features and state of preservation. The walls, about 26 feet thick at the base, still rose in places to a height of about 18 feet. Afrāz-gul observed thin layers of tamarisk brushwood interspersed at intervals of 2 feet 3 inches between the layers of clay used, in the form of pisé and rough slabs or *kisek*, in the construction of the walls. Within the enclosure the ground was permeated with *shōr*, and such remains of structures as could be traced, in the shape of clay wall foundations or debris of Toghrak timber, had been completely overturned in the course of burrowings. The same thing had occurred at two low mounds situated, as shown in the sketch-plan (Pl. 41), to the north-west of the circumvallation, which had apparently once carried structures of some kind. The shape of the nearer mound suggested to the Surveyor that it possibly marked a ruined Stūpa. Beyond these mounds in the same direction he noticed

[1] Cf. *Serindia*, iii. p. 1236.

another enclosure, of an irregular oblong shape, and showing low walls of inferior strength and apparently of later date.

Potsherds of ancient type.

The only relics that Afrāz-gul had picked up when searching the surface of this site were the fragments of red and grey pottery described in the List below. Inconspicuous as they are, they furnish an interesting archaeological indication; for, as Mr. Hobson has pointed out in his Notes on the ceramic specimens of my collection,[2] the ornamentation and fabric of these fragments from Khitai-shahri prove that they belong to types which are plentifully represented among the pottery remains found at the Lou-lan sites and also along the Tun-huang Limes. The result of Mr. Hobson's examination points to an early occupation of the site, and on this account I particularly regret that I was unable to inspect its remains myself. I can only hope that the present record may draw the attention of some competent future visitor to the place. It derives additional interest from a topographical observation noted in the Surveyor's route report. About a mile and a half before reaching Khitai-shahri from the north-east, he crossed a well-marked road leading from NW. to SE., which his guide declared to be the regular route for such traffic as passes between Kuchā and the Lop region. Considering the importance of this route during the early period when the great high road from China passed through Lou-lan, significance must attach to the fact that we find it guarded by a fortified post just at the point where it reaches the south-eastern extremity of the once cultivable area of Kuchā.

Ground crossed on return to Kuchā.

The return journey to Kuchā from Khitai-bāzār, across grazing grounds containing an abundance of reeds and scrub, brought us late on the same day to *Tim*. This outlying hamlet, at the extremity of a narrow strip of cultivated ground irrigated from one of the main canals of the Muz-art river, takes its name from an ancient ruined mound, which was too much destroyed to furnish any indication of its original character. Our next march, on May 4th, led us for some twelve miles along that narrow cultivated belt, and then for another nine over bare steppe; this forms part of the alluvial fan of the Kuchā river, but no longer receives water from it. It was only about six miles from Kuchā town that we passed into the area that had manifestly been long and continuously cultivated. The route followed by Afrāz-gul from Khitai-shahri to Kuchā town lay, as Map No. 17. c. 1, 2 shows, some distance farther east. It enabled him to determine the extreme limits of the irrigated ground on that side; most of it had been but recently reclaimed from scrubby waste. But the ruined mounds that he found in two places, and at a third the manifestly ancient walled post of Sang-khān-atam which he examined,[3] afford proof that in this direction, too, the permanently occupied area was once greater than it is now.

Antiques acquired at Kuchā.

Owing to lack of time, and the wide extent of the ground over which the old remains of Kuchā are scattered beyond the present limits of the oasis, my visits to the sites described above were necessarily very rapid. Yet the observations I made sufficed to familiarize me to some degree with the conditions under which the miscellaneous antiques acquired during my stay in the oasis, and described in the List below, were probably found. All these small objects correspond closely in type to the 'Tati' finds familiar to us from the sites of ancient occupation around the Khotan oasis, which have been abandoned to the desert since Buddhist times. Since wind-erosion is at work outside the irrigated area of Kuchā, though to a much smaller degree than south of the Taklamakān, we can believe the statements of Mīr Sharīf and Azīz 'Palwān', who supplied most of these 'finds', that they were picked up at 'Tatis' of Dawān-kum and similar localities to the west and south-west of the oasis. In any case it should be noted that remains of stucco relievos, which the exploitation of ruined shrines might have yielded, and decorated terra-cotta fragments, such as are so abundantly recovered at Khotan by washing the soil in ancient 'culture strata', are almost

[2] See below, Appendix *D*.

[3] For a sketch-plan, see Pl. 44.

completely absent from the Kuchā acquisitions.[4] The presence of comparatively numerous Sino-Kharoṣṭhī pieces among the coins collected (see App. *B*) is of interest.

Engraved bronze seals.

Amongst the bronze objects, which are by far the most numerous, the seals claim first notice. Quite a number of these, as seen in Pl. CXI, show engraved designs of animal figures, mostly of a grotesque type (Kuchā. 02, 3, 6, 101, 103, 113–17, 120, 123, 126, 154, 157, 158, 160, 164). Among the few seals with human or semi-human figures, special mention may be made of Kuchā. 0156, a man with sword standing in an attitude not unlike the king's figure on certain Kushana coins (Pl. CXI), and Kuchā. 0161 (Pl. CXI), a Triton-like figure not uncommon in Graeco-Buddhist reliefs. The bronze seal-ring, Yul. 075 (Pl. CXI), also shows classical influence in its intaglio head. Otherwise the crude execution of most of these bronze seals suggests local origin. Among the numerous small ornamented objects in bronze, such as buckles, hooks, strap-loops, buttons, Kuchā. 0110, 112, 121, 125; Yul. 02 (Pl. CXI), show figurative designs of interest. The bronze arrow-heads (Kuchā. 059–69, 106; Yul. 032–40; for specimens see Pl. CXI) vary greatly, the types found at the Tun-huang Limes, Lop Desert, and Niya sites being well represented, besides others more peculiar in shape, such as Kuchā. 069; Yul. 032 (Pl. CXI).

Objects in stone and glass.

The stone objects, which are largely of lignite, comprise a series of seals (Kuchā. 032, 109, 132–5, 149; Yul. 054, 69–74, 78, Pl. CXI) not unlike the bronze seals in design. Chinese lapidary characters are found on Kuchā. 0136, as also on the bronze seal 0159 (Pl. CXI). The glass objects comprise mainly beads and pendants (Kuchā. 09, 56, 58; Yul. 056–8, 60, 62, 64, Pl. CXI), often corresponding in shape to similar relics from Khotan sites. The small glass ducks, Kuchā. 0144–7; Yul. 065 (Pl. CXI), may have served as charms. Of the few seals in glass, Kuchā. 0152 (Pl. CXI) deserves special notice, as it shows the well-modelled figure of a Buddha seated in meditation, apparently under the Bodhi tree. Another glass seal, Yul. 059 (Pl. CXI), displays the roughly cut device of an ibex or horse, suggesting local manufacture, as do the majority of the bronze seals. Finally we find paste used as the material in the Amalaka-shaped beads Yul. 067–8 (Pl. CXI) and the pendant Yul. 055.

## LIST OF ANTIQUES FOUND AT, OR ACQUIRED FROM, KUCHĀ SITES

### OBJECTS FOUND AT TONGUZ-BĀSH SITE

**Tong. 01. Mass of raw cotton (?)** with pods. *C.* 3½" × 2½" × 2".

**Tong. 02. Child's string sandal;** of same type as T. XXIII. f. 01; Y. VI. 01. &c. Well made. Heel part of upper destroyed. Length 7¾", gr. width of sole 2¼".

**Tong. 03. Mass of hemp (?) fibre,** from unravelled string. *c.* 3" × 2".

**Tong. 04. Two frs. of plain ribbed silk;** fine weave; one buff, tied in knot in corner; one dark red. Gr. M. 7".

**Tong. 05. Fr. of neck of pottery vessel,** turning well out to plain rim above and prominent shoulder below. Fine terra-cotta giving salt efflorescence; no orn. Gr. length 2½", h. 1½".

**Tong. 06. Fr. of pottery:** fine terra-cotta, with buff slip on outside. No orn. 1¾" × 1¼".

**Tong. 07. Fr. of pottery;** fine brownish body, hard fired; signs of slip on outside. Gr. M. 2¼".

**Tong. 08. Fr. of pottery:** fine red body, coated inside and out with dark-green glaze, now iridescent. Gr. M. 2".

**Tong. 09. Fr. of walnut-shell.** Gr. M. 1$\frac{5}{16}$".

**Tong. 010. Stucco relief fr.** R. half of warrior's helmeted head, extending to line drawn down through middle of L. eye. Helmet has round knob on top, and curtain falling down back of head and extending under chin as gorget. Very soft pink clay, full of fine hair; surface much gone. Remains of white paint on face,

[4] The only two terra-cotta objects are the figurine of a squatting monkey with a small monkey astride on its shoulders, Kuchā. 073 (Pl. X), which Afrāz-gul acquired before starting for Dawān-kum, and the small relief head, Yul. 050, corroded by wind-driven sand.

The stucco heads of warriors, Kuchā. 074–6, were stated by Mīr Sharīf to have been picked up from the wind-eroded debris among small dunes to the SW. of Kotluk-ordu.

which is of type Kuchā. 074–6. Hole for stick core. H. 4".

**Tong. 011. Fr. of wall of pottery vessel.** Fine pinkish-buff body; no evidence of wheel, but roughly scraped on outside. Turning in slightly at top to plain, somewhat thinned and irregular rim. Gr. length 5", h. 3¾".

## OBJECTS FOUND AT KOSH-TURA, YULDUZ-BĀGH

**Yul. 079. Stucco relief fr.** Snail-shell curl, with traces of grey paint. Diam. ⅞", h. 9/16".

**Yul. 080. Fr. of pottery;** pale pinkish-buff, gritty, eroded. Gr. M. 2¼".

**Yul. 081. Fr. of pottery,** from straight neck of vessel with loop-handle to shoulder. Flaky, terra-cotta, with salt efflorescence. 2" × 1⅞" × 1¼".

**Yul. 082. Fr. of pottery bowl;** dark grey, hard-fired, turning in at top to plain rim. Gr. M. 1⅞".

**Yul. 083. Scrap of plain ribbed silk,** with traces of red dye. Ragged. Gr. M. 2".

**Yul. 084. Fr. of bronze pendant;** probably a bell, now crushed flat. Triangular, with ring at top. H. 11/16", gr. width ⅝".

## OBJECTS FOUND OR EXCAVATED AT TAJIK SITE

**Taj. 01. Bronze plate,** perhaps one side of handle as *Ser.* iv. Pl. VII, Y.K. i. 001. Oblong case, hollow at back, one end finished off sq., the other pointed. At sq. end the return edge cut away in middle, perhaps to allow for passage of blade. Front orn. with incised scroll starting from pair of voluted leaves at sq. end. Rivet near each end at back, projecting 3/16". Good condition. 1¾" × ⅜". Pl. CXI.

**Taj. I. 01. Wooden R. hand;** turned either up or down, open, at right angles from wrist, which is cut off sq. with remains of dowel for attachment to arm sticking in middle. Thumb and top joints of fingers lost. Clearly marked web between digits. Remains of white paint both back and front. Prob. hand of Buddha in Abhaya-mudrā. Well carved but surface somewhat perished. Length 3¼". Pl. LXVI.

**Taj. I. 02. Wooden peg;** smooth, cylindrical, tapering slightly to one end (broken off). Remains of white paint over whole and traces of gilding. In one side, half-way down, small hole, in which remains head of thin wooden pin. Length 2⅞", gr. diam. 9/16".

**Taj. I. 03. White stone pendant;** flat lotus-petal shape, with bevelled edges and hole through base end. Length ⅜".

**Taj. I. 04. Fr. of pottery;** fine terra-cotta, hard-fired. No orn. Gr. M. 1⅞".

**Taj. I. i. 01. Stucco relief head** of a Bodhisattva; rather short and wide, with small features of conventional type. Hair loosely looped up in series of symmetrical locks parting from central lock over middle of forehead, and drawn up under straight jewelled band on crown. Topknot lost; elongated ears. Surface worn. Clay partially burnt, apparently accidentally. H. 4".

**Taj. I. ii. 01. Fr. of wall of glass vessel;** clear green, curved; surface has begun to oxidize. Broken in two (now joined). 2¼" × 1 13/16".

## OBJECTS EXCAVATED OR FOUND AT TOGHRAK-AKIN SITE

**T.A. 01. Three glass or stone beads.** One bluish-white stone, spheroid; one blue glass, translucent, faceted spheroid; one yellow glass, translucent, elongated spheroid. All more or less chipped. Gr. M. 7/16".

**T.A. I. 01. Carved wooden capital** nearly square in plan. Abacus consists of five members: a 1" fillet above a 1" inward chamfer with quirk between; then a flat *c.* ⅝", below which an outward chamfer, quirk and fillet similar to those above but reversed and slightly narrower. Below abacus and recessed about ½", the sides fall in flat vertical planes 3¾" at corners. Thence they curve gently under into leaf forms of bell which forms the lower part of capital.

From the lowest point of each vertical corner to centre of each side the line, first swelling slightly downward, curves upward in a cyma, meeting in a point formed by the small downward curves of the upper ends of the two opposed cymas.

A pearl border carved ⅝" within the edges on the flat faces bounded by cyma curves, lower fillet of abacus and vertical angles of capital. The pearls follow vertical line and cyma curves, the part below fillet being plain.

Inverted bell of capital is shallow like a basin and is composed of eight petals, alternately broad and narrow. The four broad petals occur at corners. From bottom of 'basin' they flow upwards in basin form for a short distance and then bend sharply down and outward in a convex curve to meet lower large curves of the cymas. The intermediate narrow petals rise towards centre point of each side of capital and roll over below meeting point of cymas. They are deeply undercut like a pair of distended nostrils. Each of the eight petals has the appearance of having a second, slightly smaller petal superimposed upon it. Midribs project in strongly marked keels. Small recessed spaces separate petals from each other.

Under surface of capital is drilled with a 3¼" wide hollow, 4" deep, to take shaft. Surface surrounding hollow, flat (part broken away) and about 1¼" wide. Cutting, bold and direct with no attempt at smoothing out chisel marks. Size 1' 1½" × 1' 1" × (height) 10". Pl. XV.

**T.A. I. 02. Fr. of wooden baluster rail;** lathe-turned in horizontal corrugations. About three-fourths of thickness missing, and ends broken. Surface spongy. $7\frac{3}{4}'' \times 1\frac{1}{4}''$. Original diam. *c.* 2″.

**T.A. II. i. 01. Fr. of bronze relief orn.** Built-up strip, orn. in heavy relief along each edge with border of bead or cable orn., and inside with row of circular settings for jewels (two preserved), composed of plain relief ring with outer circle of bead orn. Much corroded and split; all detail lost. Fr. $1\frac{3}{8}'' \times 1\frac{1}{4}''$; jewel settings, outer diam. $\frac{3}{8}''$, inner $\frac{1}{8}''$.

## OBJECTS FOUND AT KHITAI-SHAHRI SITE

**Khitai-shahri. 01. Fr. of pottery;** shoulders of vessel with two encircling incised lines above, and five $1\frac{7}{16}''$ below. In space freely incised festoon. Impure clay. $2\frac{1}{4}'' \times 3'' \times 3\frac{1}{2}''$. Thickness $\frac{1}{4}''$.

**Khitai-shahri. 02. Fr. of pottery,** plain with faint trace of incised pattern. Poorly washed. $1\frac{5}{16}'' \times 1\frac{1}{8}'' \times \frac{1}{4}''$.

**Khitai-shahri. 03. Fr. of pottery,** from body of vessel, with toothed band in relief. Poor clay. Remains of dark buff slip. $2'' \times 1\frac{1}{4}'' \times \frac{1}{4}''$.

**Khitai-shahri. 04. Fr. of pottery** from body of vessel; coarse clay with bold cable band. Surface partly scaled. $3\frac{1}{4}'' \times 2\frac{1}{4}'' \times \frac{3}{8}''$.

## OBJECTS ACQUIRED AS BROUGHT FROM YULDUZ-BĀGH SITES

**Yul. 01. Head of bronze nail;** domical, with short pin inside not projecting beyond rim of head. Hole drilled through side. Diam. $\frac{1}{2}''$, h. $\frac{1}{4}''$. Pl. CXI.

**Yul. 02. Bronze relief lion-head;** miniature, much worn. Cast hollow leaving central bar as shank for attaching to some other object. Diam. $\frac{9}{16}''$, h. *c.* $\frac{3}{16}''$. Pl. CXI.

**Yul. 03. Bronze 'cat' bell;** intact, with ball clapper and loop handle, but much worn. Diam. $\frac{9}{16}''$. Pl. CXI.

**Yul. 04. Bronze hook;** tongue-shaped, plano-convex in section, with long tip recurved up and backwards to form hook. Beneath flat under-side at other end projects stud for attachment of strap or garment. Much corroded. Cf. *Ser.* iv. Pl. XXIX, L.A. 00177. d. Length 1″. Pl. XI.

**Yul. 05–6. Two bronze rings;** *05* circular, *06* elliptical; both round in section and with short stud projecting from side at right angles at one point. Stud slightly thickened at end to form catch in 05, and slightly hooked in 06. Diam. $\frac{15}{16}''$ and $1\frac{1}{8}''$.

**Yul. 07. Open-work bronze orn. or link,** in form of flat ring, from which four other smaller rings project at the cardinal points. Made in one piece. Outer edge of small rings worn, and one broken through. $1\frac{1}{4}'' \times 1\frac{1}{8}''$; diam. of central ring $\frac{7}{16}''$, of outer rings $\frac{3}{16}''$ to $\frac{1}{4}''$.

**Yul. 08. Miniature stone or paste relief hand;** straight, with fingers doubled into palm; groove round wrist. Greenish-blue stone, sand-encrusted. Length $\frac{9}{16}''$.

**Yul. 09. Bronze ring;** hollowed at back with remains of two studs at ends of diameter; convex in front, moulded in form of ring of nine beads. Diam. $\frac{13}{16}''$. Pl. CXI.

**Yul. 010–12. Three bronze strap-loops;** pieces of bronze plate of long D-shape, with oblong opening by straight side and three (or four) studs projecting behind. Chamfered edges. Good condition. H. $\frac{3}{4}''$, 1″, and $1\frac{1}{16}''$.

**Yul. 013–15. Three bronze buckles;** long D-shape, with oblong loop for attachment of strap by straight side. *013* and *015* retain tongue. Fair condition. H. $\frac{13}{16}''$ to $\frac{15}{16}''$, width $\frac{3}{4}''$ to $1\frac{1}{16}''$. Pl. CXI.

**Yul. 016. Bronze buckle,** with plate for attachment of strap, instead of loop. Three rivets at back, and tongue, complete. H. $\frac{15}{16}''$, width $1\frac{1}{8}''$. Pl. CXI.

**Yul. 017. Bronze clip;** thumb-shaped strip of plate, doubled over and fastened on itself with two rivets $\frac{3}{16}''$ long. At bend, sides and middle of strip are cut away to leave two narrow curved bands only. $1\frac{3}{16}''$ (as doubled) × (gr. width) $\frac{9}{16}''$.

**Yul. 018. Bronze hook and stud.** Deep hook made of small solid bar, thinned down at bend, and with upward end finished in well-shaped tongue. Round flat stud projects at right angles at back. Strong and well made. Length $\frac{7}{8}''$, projection $\frac{3}{8}''$. Pl. CXI.

**Yul. 019. Bronze stud;** shield-shaped head cast hollow at back, with raised edge along straight side and other edges chamfered. $\frac{5}{16}''$ pin at back. Head (gr. width and length) $\frac{11}{16}''$. Pl. CXI.

**Yul. 020. Fr. of bronze hook;** long solid leaf-shaped head, plano-convex in section, and slightly convex from end to end, hook broken away. Round flat stud at back. Head $1\frac{3}{8}'' \times \frac{1}{2}''$, depth of stud $\frac{3}{8}''$. Pl. CXI.

**Yul. 021. Fr. of bronze buckle;** long D-shaped curved bar, finished in knob at either end of straight side, which is missing. Knobs pierced for insertion of pin carrying tongue. Good condition. Length $1\frac{7}{16}''$, width (of buckle) $\frac{7}{8}''$, of bar $\frac{1}{4}''$.

**Yul. 022. Fr. of bronze object,** ladder-shaped; made of bronze bar, round in section. Two cross-bars preserved, with two parallel sides projecting as if to form oblong loop, but broken off short. At back of cross-bar, this end of sq. loop, are two short studs. Gr. length $1\frac{1}{4}''$, width $\frac{3}{4}''$.

**Yul. 023. Bronze rod.** Straight bar, round in section, blunt-pointed at one end, tapering slightly to other, where it is flattened and punched to form ring (broken). The form is similar to that used by Indians for applying antimony to the eyes. Length $2\frac{1}{4}''$, average diam. $\frac{1}{8}''$ to $\frac{3}{16}''$. Pl. CXI.

**Yul. 024. Ornamental bronze shaft;** use uncertain. Straight hexagonal in middle, expanding above and below into groups of mouldings. Flat knob with pearl moulding encircling it terminates rod at one end. A similar but larger one is at the other end; beyond rod continues for $\frac{5}{16}$" in form of two ring mouldings; last of them has a drilled hole. Length $2\frac{3}{8}$", diam. of shaft $\frac{1}{4}$", of gr. knob $\frac{3}{4}$". Pl. CXI.

**Yul. 025. Fr. of bronze plate,** with traces of Chinese 'strap' orn. in very low relief on face. Gr. M. $1\frac{3}{8}$". Pl. CXI.

**Yul. 026–7. Two bronze strap-loops;** *026* D-shaped bronze plate, *027* square; each with oblong slit by straight edge, and three or four pins respectively at back. $1\frac{3}{16}$" × $\frac{3}{4}$" and $1\frac{1}{16}$" × $\frac{13}{16}$".

**Yul. 028. Bronze strap-loop,** double, made of two elliptical plates front and back; front one with edges cast back in bold chamfer, back one flat; joined to each other by four pins, leaving space of $\frac{1}{8}$" between. Elliptical opening $\frac{3}{8}$" × $\frac{3}{16}$", pierced through both plates near one edge and a V-nick at centre of one long side of outer ellipse. $\frac{15}{16}$" × 1". Pl. CXI.

**Yul. 029–30. Two bronze buttons;** *029* square, *030* circular and slightly domical; each with rectang. loop at back. Corroded. $\frac{13}{16}$" sq. and $1\frac{1}{8}$" diam.

**Yul. 031. Bronze button;** round, slightly convex, with back hollowed out leaving flat bar across for attachment. Corroded. Diam. $\frac{7}{8}$".

**Yul. 032. Bronze arrow-head;** made of long central shaft, round in section, with iron core and with three very low flanges projecting as blades. No barbs; blunt point, and edges of flanges blunt. Iron core probably projected as tang, but is now flush with butt. Good condition. Length $1\frac{13}{16}$", gr. width $\frac{11}{32}$", diam. of shaft at butt $\frac{11}{32}$". Pl. CXI.

**Yul. 033–6. Four bronze arrow-heads,** of type L. J. 01; *Ser.* ii. p. 767, T. 007. Sides plain; no barbs. *034–6* much corroded, and retaining stumps of iron tangs, rust from which has overspread blade. Gr. length $1\frac{7}{16}$". Pl. CXI.

**Yul. 037–9. Three bronze arrow-heads,** of type L. J. 01, Pl. XXIII, &c.; but angles cut back in barbs, and triangular depressions in faces. Iron corrosion about butt of Yul. 037. Fair condition. Gr. length $1\frac{3}{16}$". Pl. CXI.

**Yul. 040. Bronze arrow-head,** of type L. Singh. 015, Pl. XXIII. Three sharp prominent blades about small hollow central shaft. Sharp point and barbs. Length $1\frac{1}{4}$". Pl. CXI.

**Yul. 041. Bronze seal;** round disc with loop shank at back. Device: a peacock standing to L. with upraised tail. Diam. $\frac{9}{16}$". Pl. CXI.

**Yul. 042. Bronze seal;** sq. face with loop shank at back. Device corroded beyond recognition. $\frac{5}{8}$" sq.

**Yul. 043. Bronze seal;** sq. face with long straight shank at back ending in loop. Badly corroded and face destroyed. $\frac{9}{16}$" sq., h. $\frac{13}{16}$".

**Yul. 044. Bronze seal;** square face with rectang. loop at back. Device, spoilt by corrosion, seems to represent four-footed beast standing to L. with upraised tail. 1" sq. Pl. CXI.

**Yul. 045. Bronze stud or seal.** Disc, with shank at back terminating in large flat sq. head. Traces of device (?) on face of disc, but destroyed by corrosion. Diam. of disc $1\frac{1}{8}$", sq. head $\frac{7}{8}$" × $\frac{3}{4}$", length of shank $\frac{5}{8}$". Pl. CXI.

**Yul. 046. Bronze seal or stud;** shaped like preceding, with sq. face, and shank at back terminating in large quatrefoil with raised edges. Device on face: fig. seated cross-legged with both (?) arms uplifted, and halo (?) round head. Corroded and no detail left. Quatrefoil very brittle. Face $\frac{3}{4}$" × $\frac{5}{8}$", quatrefoil $\frac{7}{8}$" × $\frac{5}{8}$", length of shank $\frac{1}{2}$". Pl. CXI.

**Yul. 047. Bronze seal;** sq. face, with long shank rising from stepped base at back and terminating in ring. Device: winged griffin (?) standing to R. with uplifted head, much destroyed by corrosion. 1" × $\frac{7}{8}$", h. $1\frac{1}{8}$". Pl. CXI.

**Yul. 048. Bronze seal;** disc with rectang. loop at back. Device: equal-armed cross with end of each arm thickened and curling over to R. in single volute; a kind of modified Svastika. Fairly preserved. Diam. $\frac{13}{16}$". Pl. CXI.

**Yul. 049. Bronze seal or stud.** Disc, with shank at back terminating in large lozenge-shaped (?) head (broken). On each face traces of device similar to that of Yul. 048, but one with three voluted arms, forming a triangle in centre, much obscured by corrosion. Diam. of faces *c.* $\frac{11}{16}$", length of shank $\frac{1}{2}$". Pl. CXI.

**Yul. 050. Terra-cotta relief head;** lion or grotesque human. Surface much corroded and lower part of face lost. H. *c.* 1", projection *c.* $\frac{3}{8}$".

**Yul. 051. Fr. of bronze rod,** rectang. in section, tapering towards point; broken both ends, edges cracked. $\frac{7}{8}$" × $\frac{1}{4}$" × $\frac{3}{16}$".

**Yul. 052–3. Two sticks of graphite or ink.** Short, octagonal in section, tapering slightly to blunt point. Other end cut off sq., with hole pierced through horizontally. Lengths $1\frac{1}{8}$" and $\frac{13}{16}$". Pl. CXI.

**Yul. 054. Fr. of lignite pendant or seal.** Flat, triangular, sides slightly convex, hole pierced through lengthwise. Surface split away both sides. $\frac{13}{16}$" × $\frac{13}{16}$" × $\frac{11}{16}$".

**Yul. 055. Paste pendant or charm;** male pudenda. Cf. *Ser.* iv. Pl. IV, Jiya. 004. Greenish blue. $\frac{11}{16}$" × $\frac{9}{16}$".

**Yul. 056–7. Two glass pendants;** flat, triangular, with hole through apex. Glass respectively dark blue, and dark pink, semi-translucent, streaked horizontally with lines of opaque white paste, and finishing (057) with band of yellow glass; *056* iridescent. Lengths $\frac{5}{8}$" and $\frac{7}{16}$". Pl. CXI.

**Yul. 058. Fr. of glass pendant;** light blue, translucent, in form apparently of three-armed star; one arm shorter than the others and pierced for suspension; one long arm broken. Gr. M. $\frac{3}{4}$". Pl. CXI.

**Yul. 059. Glass seal**; translucent blue, flat, elliptical. Device roughly cut: an ibex or horse in profile to R., head held high. $\frac{11}{16}'' \times \frac{9}{16}''$. Pl. CXI.

**Yul. 060. Glass bead**; blue, translucent, of long barrel-shape with surface channelled spirally. Surface partially gone. $\frac{5}{8}'' \times$ (gr. diam.) $\frac{3}{8}''$.

**Yul. 061. Fr. of agate pendant**; apparently long drop shape, lower end lost; white agate. Length $\frac{1}{2}''$, gr. diam. $\frac{1}{4}''$.

**Yul. 062. Glass pendant**, in form of model of vase drilled through neck for suspension. Shape exactly as in *Ser.* iv. Pl. IV, Yo. 06. f., with small ring foot, ovoid body, and longish neck expanding to trumpet mouth. White glass, translucent. H. $1\frac{1}{2}''$. Pl. CXI.

**Yul. 063. Fr. of carnelian bead**; prob. barrel-shaped; flame-red. Gr. M. $\frac{5}{16}''$.

**Yul. 064. Fr. of glass pendant or bead**; greenish-yellow, translucent; surface too worn to show orig. shape. Gr. M. $\frac{5}{8}''$.

**Yul. 065. Glass duck charm**, as Ark. Han. 021. Deep yellow glass, translucent, pierced for suspension, surface pitted. H. $\frac{1}{2}''$. Pl. CXI.

**Yul. 066. Fr. of carnelian bead**; light red, ornamented with lozenge lattice-work of white lines as *Ser.* iv. Pl. IV, Jiya. 005. Gr. M. $\frac{7}{16}''$. Pl. CXI.

**Yul. 067–8. Two paste beads**; soft pink paste covered with greenish-white glaze; Amalaka-shaped. Diam. $\frac{7}{16}''$ and $\frac{3}{8}''$. Pl. CXI.

**Yul. 069. Graphite seal**; blunt hexagonal point as Yul. 052–3, with quatrefoil rudely cut on broad end. Hole also pierced horizontally near latter. Length $1\frac{3}{16}''$, diam. of flat end $\frac{1}{2}''$. Pl. CXI.

**Yul. 070. Graphite seal**; four-sided cone, pierced through apex. Design on base effaced. H. $\frac{5}{8}''$, base $\frac{7}{16}'' \times \frac{5}{16}''$. Pl. CXI.

**Yul. 071. Lignite seal**; in form of flat four-sided pyramid with top cut off. Pierced from side to side. Face mostly destroyed, but shows remains of animal (?) device within a square pearl border. $\frac{5}{8}'' \times \frac{5}{8}''$.

**Yul. 072. Lignite seal**; flat, elliptical, pierced laterally. Device: probably on one side a head in profile, on other some scroll device. $\frac{11}{16}'' \times \frac{1}{2}''$.

**Yul. 073. Remains of lignite seal**; flat, elliptical, pierced through longest diam. Surface on one side destroyed, on other a bold dragon-like scroll, incomplete. Gr. M. $\frac{13}{16}''$.

**Yul. 074. Lignite seal**; sq. with tunnel handle at back. Face (partially lost) shows Chinese seal character, but broken and too imperfect to be deciphered. Face (orig.) $\frac{9}{16}''$ sq., h. $\frac{9}{16}''$.

**Yul. 075. Fr. of bronze seal-ring**; back of hoop lost; elliptical table showing intaglio head in profile to L. Head uplifted, with long straight nose, short upper lip, prominent chin. Wears close-fitting cap with band round forehead; or has hair done close and bound by fillet tied in short streamers at nape of neck. $\frac{5}{8}'' \times \frac{1}{2}''$, diam. of ring $\frac{5}{8}''$. Pl. CXI.

**Yul. 076. Fr. of bronze seal-ring**; back of hoop lost. Elliptical table damaged by corrosion; hence device unintelligible. Diam. of ring $\frac{3}{4}''$.

**Yul. 077. Bronze ring**, with cell setting for round jewel (lost). On either side of bezel hoop is moulded in relief in manner suggesting buckled ends of straps, and at back orn. with cross grooves. Diam. $\frac{13}{16}''$. Pl. CXI.

**Yul. 078. Lignite seal**; flat, pierced horizontally through shortest diam. One edge destroyed, with part of face on each side. Device on one: head in profile to R. with elaborate head-dress. Treatment suggests crude Sasanian work. Remains on other side show three motifs of curled cloud type round edge, and hatching in middle. Cf. *Ser.* iv. Pl. XXIX, L.A. VIII–IX. 001. $1'' \times \frac{5}{8}''$. Pl. CXI.

## OBJECTS ACQUIRED AT KUCHĀ TOWN

**Kuchā. 01. Glass seal-ring**, yellow, no device traceable; broken at under-side. Diam. $\frac{13}{16}''$.

**Kuchā. 02. Bronze seal**; in a circle of pearls (relief) a winged animal to L. *statant*, in intaglio; a group of three pearls in relievo to R. and L. of circle. Plain flat shank, pierced for cord. Moderately good work. Cf. *Ser.* iv. Pl. V, Yo. 0096. b. Gr. diam. $\frac{3}{4}''$. Pl. CXI.

**Kuchā. 03. Bronze seal-ring** with device of animal (lion ?) *passant* to R. p., much worn and corroded. Back of ring broken. Diam. *c.* $\frac{5}{8}''$. Pl. CXI.

**Kuchā. 04. Fr. of bronze seal-ring**, broken across bezel. Device corroded. Gr. M. $\frac{1}{2}''$.

**Kuchā. 05. Bronze seal-ring**, broken away at back, and bent at bezel. Device crudely cut and undecipherable. For type cf. *Ser.* iv. Pl. XXIX, L.A. 00107. Diam. *c.* $\frac{7}{8}''$.

**Kuchā. 06. Bronze seal-ring.** Device: lion to R. p. *passant*; moderately good workmanship. Diam. $\frac{3}{4}''$. Pl. CXI.

**Kuchā. 07. Bronze seal**; square-headed nail shape, with simple device of an X. Rough work. Head $\frac{3}{8}''$ sq.

**Kuchā. 08. Bronze seal-ring**, small, with badly drawn Svastika device. Diam. $\frac{1}{2}''$. Pl. CXI.

**Kuchā. 09. Glass beads**; of various shapes, in several tints of blue and yellow; one gilded. Gr. diam. $\frac{7}{16}''$.

**Kuchā. 011, 12, 15, 16, 19, 22, 25, 26, 29, 36, 46. Miscellaneous small bronze buckles**, frs. of buckles and tags in bronze. *029* is a good specimen of a tag, of rather straight talon shape. Gr. length (026) $1\frac{1}{4}''$. Pl. CXI.

**Kuchā. 013, 14, 27, 31, 38, 39, 40, 45, 47, 48. Frs. of bronze.** *047*, slag. Gr. M. (*013*) $1\frac{1}{4}''$.

**Kuchā. 017, 33, 34, 37, 42, 43, 52. Frs. of bronze wire,** round and flat, of various gauges. Gr. length 1 5/16".

**Kuchā. 018. Fr. of glass button;** cabochon, dark green glass, pierced laterally. Diam. 11/16", thickness 3/16".

**Kuchā. 020. Bronze centre boss,** of back of mirror, pierced for cord. H. 1/4".

**Kuchā. 021. Bronze 'cat' bell,** broken. Diam. 1/2". Pl. CXI.

**Kuchā. 023, 24, 30, 49. Frs. of bronze plate,** mirror (?). Gr. M. 5/8".

**Kuchā. 028. Bronze object,** resembling side-piece of snaffle bit, with two holes; but probably too small for this purpose. 2 1/4" × 5/16". Pl. CXI.

**Kuchā. 032. Fr. of stone,** black lignite (?) seal. 5/8" × 5/8" × 1/8".

**Kuchā. 035, 50. Two frs. of lignite (?),** equilateral triangular object with segmental (convex) sides, each containing an equilateral triangle in low relief on its face. Material black and may be an inferior lignite or burnt ivory. Length of side 5/8".

**Kuchā. 041. Bronze disc or coin,** with Kharoṣṭhī (?) chars. on one side. Much corroded. Gr. M. 5/8".

**Kuchā. 051. Fr. of yellow glass.** 5/8" × 1/2".

**Kuchā. 053. Fr. of rock crystal,** rough. 5/8" × 3/8" × 3/8".

**Kuchā. 054. Shell beads;** eleven, buff colour.

**Kuchā. 055. Eight beads** of crystal, jade, and carnelian; various shapes. Gr. M. 5/8".

**Kuchā. 056. Six glass beads,** banded and *millefiori*. Gr. length 7/16".

**Kuchā. 058. Frs. of various stone and glass beads and amulets.** One small cabochon glass seal with four-petalled flower. One bronze bead. Gr. M. 5/8".

**Kuchā. 059. Bronze arrow-head,** triangular; hollow faces, bronze tang from between short barbs. Similar to *Ser.* iv. Pl. VI, Khot. 0017. Length 1 5/16". Pl. CXI.

**Kuchā. 060, 107. Two bronze arrow-heads;** hollow-sided; three blades, barbed. Similar to *Ser.* iv. Pl. XXIX, N. XIV. 008. 1 1/4" × 5/16".

**Kuchā. 061, 63, 64, 65, 66, 67, 68. Seven bronze arrow-heads;** triangular section, smooth faces, hexagonal base and iron tangs (broken away), and short blunt barbs. *061, 063,* similar to *Ser.* iv. Pl. LIII, T. XIV. a. 007; *064* to *Ser.* iv. Pl. LIII, T. XXXII. 009; *065* to *Ser.* iv. Pl. LIII, T. XV. a. i. 007; *066* like 065 but edges slightly convex in their length and barbs sharper; *067* similar to *Ser.* iv. Pl. XXIX, L.A. VIII–IX. 005, but with conical base; *068* similar to *Ser.* iv. Pl. XXIX, L.A. 0069. Av. length 1 1/4".

**Kuchā. 062. Bronze arrow-head,** two blades with thick central hollow rib, and rounded point. Cf. *Ser.* iv. Pl. XXIX, N. XIV. iii. 0032. Much broken. Length 1 1/4". Pl. CXI.

**Kuchā. 069. Bronze arrow-head,** triangular. Each blade thin, finely curved from point to end of barb, and set round a hollow conical ferrule forming central shaft in which are three triangular holes between blades. Barbs long. Fine work. Length 1 1/4". Pl. CXI.

**Kuchā. 073. Terra-cotta monkey figurine,** apparently female, squatting; holds something in lap, and carries small monkey astride on shoulders. Naturalistic type. 2 1/4" × 1". Pl. X.

**Kuchā. 074–6. Three stucco warrior heads.** Red clay stucco with very fine fibre. Heads wear round close helmets from which point has apparently been broken off; curtains down side and under chin, with large ear ornaments like wings, attached. Eyes small, slightly prominent and straight. Nose and mouth small. All from same mould. 3 1/4" × 2 1/4".

**Kuchā. 077. Fr. of stone,** agate (?) of pointed dome-shape; polished, yellowish translucent. Diam. 1", h. 7/8". Pl. CXI.

**Kuchā. 078. Ring of pale jade** or jadeite; semicircular section; a pair of small holes drilled diagonally to meet, on each side of central hole, at back, for fastening. On one side the division between pair of holes had broken down and a fresh hole has been drilled. Diam. 7/8", thickness 1/4". Pl. CXI.

**Kuchā. 079–83. Five shell beads.** *079* irreg. 5/8" × 1/2". Others roughly spherical 1/4" diam.

**Kuchā. 084. Agate bead,** roughly spherical. 1/2" diam.

**Kuchā. 085. Agate pebble.** *c.* 5/8" diam.

**Kuchā. 0101. Bronze seal,** elliptical; loop at back broken. Device: a well-modelled goose, standing to L. p. within enclosing line. 11/16" × 9/16". Pl. CXI.

**Kuchā. 0102. Bronze seal,** circular, convex, with loop at back. Device: an attenuated man striding (or standing) with R. knee bent, displaying four arms, two downward and two up, with emblems in hands. Poor work. Diam. 5/8". Pl. CXI.

**Kuchā. 0103. Copper seal,** lenticular, drilled from side to side. *Obv.* Goose, *statant* to R. p., carrying wreath in beak. *Rev.* Head of duck to R. p. rising from nest or water. 9/16" × 1/2" × 1/4". Pl. CXI.

**Kuchā. 0104. Bronze bead,** in form of head with lightly modelled feature of a man with moustaches, hair (or head-dress) smoothed flat on forehead, and a sort of wimple round face and under chin. Hole drilled from side to side. 9/16" × 1/2" × 5/8".

**Kuchā. 0105. Bronze seal (?),** flat, lenticular, with small projecting knob at one end. Device, if any, worn away. 11/16" × 7/16" × 3/16".

**Kuchā. 0106. Bronze arrow-head,** triangular, flat face tapering to long point. In one face a deep triangular depression. Short blunt barbs. Length 1 5/8", Gr. breadth 5/8".

**Kuchā. 0108. Graphite object;** triangular, two long sides convex, hole pierced through one lower corner. One side roughly cut into crude device, other side with irregular depressions. 1″ × 3/16″ × 3/16″.

**Kuchā. 0109. Fr. of lignite seal;** square, with tubular attachment at back. Device: Chinese fret similar to *Ser.* iv. Pl. V, Yo. 0089, but with more detail and finely cut. 11/16″ × 5/8″.

**Kuchā. 0110. Bronze ornament,** rectangular, drilled at each corner. Large rectangular slit occupying 3/8 of lower part (as for use as buckle); upper portion occupied by good heraldic lion in relief (prob. riveted on), *passant regardant*, with foliate tail. Edges chamfered. Remains of red pigment. Back hollow. 1″ × 5/8″ × 3/16″. Pl. CXI.

**Kuchā. 0111. Fr. of bronze ornament,** of irreg. shape, composed of shallow scrolls. Broken square loop at back. 3/4″ × 5/8″.

**Kuchā. 0112. Brass ornament,** in low relief and pierced; flat shank, drilled. Figure seated on raised seat holds mace in R. hand, resting on knee, and sword upraised in L. hand. Face worn away, but with one point above centre and one each side. Cf. rat-headed deity on wooden seal, U.Z. 05. 1″ × 5/8″. Pl. CXI.

**Kuchā. 0113. Bronze seal,** circular, with loop at back. Device: a winged (or humped) stag, *passant*; fairly modelled. Remains of red pigment. Diam. 3/4″. Pl. CXI.

**Kuchā. 0114. Bronze seal,** square, square loop at back. Device: thin heraldic beast (horse?), *passant* to L. p., with streaming mane (?) and floral detail on background by chest; upward curved tail. Well modelled but corroded. Remains of red pigment. 3/4″ sq. Pl. CXI.

**Kuchā. 0115. Bronze seal,** square, with two curved rivets at back. Device: sphinx, *passant*, crowned, upward curved wing, tail between legs. Well modelled. Cf. *Ser.* iv. Pl. V, Khot. 004. a. 1″ sq. Pl. CXI.

**Kuchā. 0116. Bronze seal,** square, with square loop at back. Device: a stag (?), *couchant regardant* to L. p. Much corroded, but seems to be well modelled. 1 1/4″ sq. Pl. CXI.

**Kuchā. 0117. Bronze seal,** square, with square loop at back. Device: a leopard (?), *passant* to L. p.; open jaws, long ear, much-curled angular tail with projecting node at first turn; one fore-foot upward curled. Poorly modelled. 7/8″ sq. Pl. CXI.

**Kuchā. 0118. Bronze seal,** lozenge-shaped, with square loop at back. Device deeply cut: grotesque dancing figure supported on two stems joined at lower point. 1 7/16″ × 13/16″. Pl. CXI.

**Kuchā. 0119. Bronze seal,** square, with large tubular projection at back. Device: Chinese lapidary chars. much defaced. 3/4″ sq. Pl. CXI.

**Kuchā. 0120. Bronze seal,** square, with broken square loop at back. Device: a much-contorted horse, *couchant*, body bent at right angles at middle. Cf. Kuchā. 0121. Fairly well modelled. 1 3/16″ sq. Pl. CXI.

**Kuchā. 0121. Bronze ornament,** hollow domical, with bar across back for attachment. Device in relief: a much-contorted kneeling horse. Accidental hole through surface. Cf. Kuchā 0120. Diam. 1″, h. 3/8″. Pl. CXI.

**Kuchā. 0122. Bronze seal-ring,** massive, with deeply cut device of severe floral type. Crude. Bezel 5/8″ × 7/16″; diam. of ring 1″. Pl. CXI.

**Kuchā. 0123. Bronze seal-ring;** elliptical table. Device: a leopard *passant*, surrounded by dots. Poor workmanship. Ellipse 5/8″ × 1/2″. Pl. CXI.

**Kuchā. 0124. Bronze seal-ring;** elliptical table with traces of device, and thickened shoulders. Diam. 7/8″ × 13/16″.

**Kuchā. 0125. Bronze bird's head,** hollow, prob. hawk, broken at neck; apparently meant for ornamental ferrule. Well modelled. 1 5/8″ × 1 1/2″ × 1 1/10″. Pl. CXI.

**Kuchā. 0126. Bronze seal,** circular, long shank with whirling star pattern boss at end; each of the five points of star a curved half Pipal-leaf shape. Device: a long horned goat with body much curved to fit circular form. Very spirited high relief modelling; forelegs very freely curved. Diam. 1 1/2″, length of shank 7/16″, diam. of star nearly 1″. Pl. CXI.

**Kuchā. 0132. Lignite stamp,** irregular cone-shaped, drilled near point. Face, parabolic, broken at R. side, with a pair of double circles across centre from which two diverging stems extend downwards and centre stem upward; interspaces with solid fillings. Enclosing line all round. Very crude. 1 3/16″ × 13/16″ × 3/4″. Pl. CXI.

**Kuchā. 0133. Lignite seal,** two-sided, in form of flat round pellet drilled through sides. *Obv.* attenuated deer (?), tripping, with large leaf-shaped object placed horizontally behind head, perhaps antlers; a raised dot over back, a second below body, a third below head. *Rev.* lion with tail curling over back; lower part perished. Diam. 1 3/16″, thickness 3/8″. Pl. CXI.

**Kuchā. 0134. Lignite seal,** plano-convex, elliptical, drilled through sides. *Obv.* traces of scroll-work in relief. *Rev.* prob. lion *statant regardant*; stiff tail curved over back; four petal-like objects in front of hairy neck. 1 1/4″ × 1″ × 3/8″. Pl. CXI.

**Kuchā. 0135. Lignite seal,** circular, flat pellet-shaped; *Obv.* seal: phoenix standing. *Rev.* stamp: two opposed enclosed palmettes with simple fillings in side spaces. Cf. *Ser.* iv. Pl. V, Yo. 00159. 3/4″ × 1/4″. Pl. CXI.

**Kuchā. 0136. Lignite stamp,** square, with barrel loop at back. Device: Chinese lapidary characters. 3/4″ × 3/4″ × 3/4″. Pl. CXI.

**Kuchā. 0137. Fr. of lignite stamp,** with faint lines traceable on one face. 1/2″ × 3/8″ × 1/4″.

**Kuchā. 0144–7. Four miniature glass ducks,** pierced for threading. *0144–6* yellow; *0147* blue. Average size *c.* 1/2″ × 1/2″.

**Kuchā. 0148. Fr. of glass seal-ring,** yellow, blank.

**Kuchā. 0149. Agate seal,** pellet-shaped, drilled for cord. On portion ground flat for device, an object resembling a cypress tree in front of Chinese character or gateway; but cutting so crude that it may be meant for a human figure. 9/16" × 9/16". Pl. CXI.

**Kuchā. 0150. Agate bead,** square, roughly ornamented by chemical process, with border lines and square-ended quatrefoils on both sides. Cf. *Ser.* iv. Pl. IV, Khot. 02. r. 9/16" sq., thickness 1/2".

**Kuchā. 0151. Glass seal,** elliptical, moulded, flat at back. Device: a hart *couchant*, antlers long and formal, with three parallel tines. Well modelled but worn. 7/8" × 5/8". Pl. CXI.

**Kuchā. 0152. Glass seal,** elliptical concave, moulded; smooth at back, probably intended to have metal setting. Device: Buddha figure seated in meditation with tree (?) to L. and other object to R. Surface corroded. 3/4" × 5/8". Pl. CXI.

**Kuchā. 0153. Glass seal;** elliptical, moulded. Device defaced by corrosion. 3/4" × 9/16".

**Kuchā. 0154. Bronze seal,** square, with broken square loop at back. Device: antelope *passant* to R., *regardant*, with tree to L. Fairly good. 3/4" sq. Pl. CXI.

**Kuchā. 0155. Bronze seal,** lozenge-shaped, with square loop at back. Broken at upper end. Device: human figure rising from floral scrolls holding small object in raised R. hand; L. arm akimbo. Cf. Kuchā. 0118. 1" × 1 1/4". Pl. CXI.

**Kuchā. 0156. Bronze seal,** elliptical, with massive billet-shaped loop at back, on upper face of which incised diagonal with cup depressions in the four triangles formed.

Device: standing male figure, head to L., in long coat, close flat turban (or cap), staff in R. hand, L. arm held away from body in curved line, sword at belt. Pose recalls that of king on some of the Kushana coins. Well cut. 1" × 3/4". Pl. CXI.

**Kuchā. 0157. Bronze seal,** circular, with thin shank drilled for cord. Device: hart, tripping, with ample antlers, tined; naturalistic and well modelled. Border of pearls. 3/4" diam. Pl. CXI.

**Kuchā. 0158. Bronze seal,** square, with square loop at back. Device: a kind of hippocamp but with ram's head; tail curling up one side of square; curved wing. Well modelled. 5/8" sq. Pl. CXI.

**Kuchā. 0159. Bronze seal,** square, with long projecting shank, modelled and pierced for cord. Device: Chinese lapidary chars. Face 5/8" sq., h. 3/4". Pl. CXI.

**Kuchā. 0160. Bronze seal,** round, with thin round loop at back. Device: animal (prob. stag) *statant* to R. Very corroded. Diam. 5/8". Pl. CXI.

**Kuchā. 0161. Bronze seal,** square, with broken round shank. Device: probably a Triton figure to front; the two legs in form of dolphin bodies, curling up each side, and arms outspread to meet them. Detail indistinct. 5/8" sq. Pl. CXI.

**Kuchā. 0162. Bronze seal,** square. Device: prob. stag at rest. Much corroded. 5/8" sq. Pl. CXI.

**Kuchā. 0163. Bronze seal,** round; no shank. Sunk face, divided into compartments by three loop-like raised bands converging inwards from raised outer rim. Cf. Yul. 048 and Pumpelly, *Explorations*, i. Pl. 51, Fig. 8. Fair condition. Diam. 3/4". Pl. CXI.

**Kuchā. 0164. Bronze seal,** leaf-shaped, loop at back, broken. Device: flying bird with two long crest feathers, bordered with pearls. 1 1/8" × 3/4". Pl. CXI.

**Kuchā. 0165. Fr. of bronze stamp.** Device: quatrefoil of Pipal-shaped leaves in profile. Broken loop at back. 3/4" × 5/8". Pl. CXI.

**Kuchā. 0166. Bronze stud,** in form of stag's (?) head. Pin for riveting at back. 5/8" × 3/4".

# CHAPTER XXIV

## FROM KUCHĀ TO KĀSHGAR

### Section I.—OLD REMAINS WITHIN THE BAI DISTRICT

Start from Kuchā.

On May 6th I set out from Kuchā westwards in order to regain Kāshgar. Colonel (now Brigadier-General Sir Percy) Sykes had taken over officiating charge of the Consulate General since early April, while Sir George Macartney was on leave in England; and I knew that he intended to start on tour from Kāshgar by the first week in June. It was essential that I should reach Kāshgar before his departure, in order to secure his help in the preparations for my intended journey across the Russian Pāmīrs and along the uppermost Oxus. The distance still separating me from Kāshgar—nearly 500 miles—would require at least three weeks' continuous travel; and this, together with a few necessary brief halts *en route* at the several district head-quarters, left but little time to spare on the journey. I had to be content with such opportunities as it afforded for a general survey of those portions of the ancient 'northern route' of the Chinese which I had not seen before. The short time that might remain available for antiquarian work I proposed to use at two minor sites in the district of Bai, which my informants at Kuchā told me had never been visited by European archaeologists.

Road to Kizil R.

For the first two marches from Kuchā town to the Kizil river we followed the high road. This ascends the barren hill chain trending towards the Muz-art-daryā by a winding gorge which opens at a distance of about ten miles from Kuchā town. The high ruined tower and small cave-shrines of Kizil-kāghe (Map No. 17. A. 1) which we passed about half-way to this gorge attest the antiquity of the line followed by this portion of the road. At the most easily defended point of the defile, known as *Karaul*, I noticed the foundations of four towers, perched on bold cliffs and evidently marking an old *chiusa*.

Visit to 'Ming-oi' of *Kizil*.

The village of Kizil-örtang was reached on the second march after we had crossed a bare and much-broken plateau at a height of about 5,600 feet. Thence on May 8th I paid a rapid but instructive visit to the great agglomeration of Buddhist cave-shrines situated in ravines above the left bank of the Muz-art river (Fig. 343). This very important site, known as *Kizil Ming-oi*, has been repeatedly examined and explored by various Russian, German, and French archaeological expeditions. Full descriptions of the many interesting wall-paintings which decorated its cave-temples have been furnished by Professor A. Grünwedel in two successive works; while a large number of those removed to Berlin will be found faithfully reproduced in Professor von Lecoq's publications.[1] No detailed reference to the position and character of these shrines is therefore necessary. The site as a whole recalled, more than any other in Chinese Turkestan, the impressions left on me by the Thousand Buddhas of Tun-huang.

Site of *Tezak-kāghe*.

On May 9th I left the line of the high road leading to Bai for a more northerly route. It took me through the flourishing village tract of Lapār and thence along the bed of the river which irrigates it, as well as that of Sairam, to the ruined site known as the *Tezak-kāghe Ming-oi* (Map No. 17. A. 1). This place takes its name from the cultivated tract immediately below the point

[1] See Grünwedel, *Altbuddh. Kultstätten*, pp. 37–181, and *Alt-Kutscha*, ii. pp. 57 sqq.; von Lecoq, *Buddh. Spätantike*, passim.

where the river debouches, near which the ruins are situated. These occupy, as the sketch-plan in Pl. 45 shows, the southernmost offshoot of a spur descending along the right bank of the wide river-bed where it emerges from the T'ien-shan foot-hills. At the point where this end of the spur falls off, with a precipitous scarp, towards the river winding at a distance of about 60 yards along its foot, a number of small caves have been cut into the conglomerate rock. Some eight of these face the river; about as many more are found on either side of a small Nullah which cuts into a little plateau bearing remains of a ruined tower and an adjoining structure marked i.

Cave-shrines at *Tezak-kāghe.*

In most of the little caves the rock walls expose the coarse rubble of which they are composed, the original plastering having probably fallen off owing to the roughness and irregularity of the surface. It is therefore impossible to make out whether these small cellas, square or rectangular in shape, served as shrines or monastic quarters. Two somewhat larger caves, situated immediately below the structure mentioned above, and shown in the plan, Pl. 44, have retained portions of the plaster covering their walls; they show traces of badly injured paintings, which, with the circumambulatory passage in the cave marked iii, conclusively prove that they served for Buddhist worship. The walls closing the front of these cellas, and dividing them from a narrow apartment between, were constructed of rough brickwork. These caves, like the rest, showed signs of having served as shelters at one time or another after worship had ceased there.

Walled enclosure on ridge top.

The ruined structure, i, had been built on the artificially enlarged top of a small ridge, about 120 feet above the river-bed. The area enclosed by the badly decayed walls of stamped clay and gravel, measures roughly 40 yards by 26. Near the south-western corner, a fragment of the wall still rose to about 9 feet; elsewhere the enclosure was marked only by low mounds of gravel. I was told that the whole interior had been dug up in the days of 'Bedaulat's' rule, to obtain saltpetre from the soil. This suggests that the ruin had been occupied by quarters in ancient times.

Ruined township.

The fact that the plateau-like top in which the spur terminates to the south and south-west is covered with low scattered grave-mounds, obviously Muhammadan, probably indicates continued local worship at this spot. The very end of the spur to the south-east is occupied by the remains of a small township, enclosed by badly decayed walls, and defended on the north and west, the only sides easily accessible, by a well-marked fosse. This measures about 40 feet across at the top, and has a depth of 10 feet at the north-eastern corner, where it has been cut through the rock. The wall is built of large stones from the river-bed, and shows a thickness of about 3 feet on the north side, where its remains are best traceable. Elsewhere, owing to the steepness of the scarp, along the foot of which the river washes on the south and east, this roughly built wall has almost completely disappeared. The whole of the interior of the protected area, measuring about 140 yards by 100, is covered with stone heaps, the remains of the rubble-built walls of houses. The appearance of the whole strikingly recalled that of the Kāfir-kōts on the Indus, and other ruined town sites near the hills of the Indian North-West Frontier,[2] though the latter are on a much larger scale.

To Bai and across Muz-art R.

After halting for a day at Bai, the district head-quarters, out of regard for the attentive Chinese magistrate, I once more left the line of the high road which we had struck there, in order to visit the 'Ming-oi' which I had been informed at Kuchā was situated in the barren hills to the south of the Muz-art river. After passing for some 10 miles through well-cultivated ground irrigated from the Kapsalang river, we crossed to the right bank of the Muz-art-daryā, near the little market-place of Un-bāsh (Map No. 12. D. 1). It was interesting to observe that though the bed of the river was fully a mile across, yet the water actually flowing in three small channels showed a total volume of only about 580 cubic feet per second. This volume seemed very modest compared with that of

[2] See e. g. Stein, *Archaeological Survey Report, NW. Frontier Province and Baluchistan*, 1912, pp. 13 sq.

over 2,000 cubic feet which I had measured, less than a fortnight before, where the river debouches into the plain.[3] It suggested that a very considerable portion of the supply of water then measured was derived from the several tributaries which the Muz-art river receives below Bai, and that the glaciers about Khān-tengri, which are the main sources of the river, had not yet begun to send down their summer flood. Moreover a good deal of the water actually available in the river, where it passes through the basin of Bai, was probably absorbed by the canals irrigating the belts of cultivation on either bank above and below Yaka-arik.

'Ming-oi' of *Jigdalik.* Pitching camp at the village of Jigdalik, I visited, on May 13th, the collection of cave-shrines locally known as 'Ming-oi'. They proved to be situated about 5 miles to the SSW., at the head of a narrow winding valley, which descends from the barren hill range dividing the basin of Bai from the desert plain north of the Tārīm. Where the little valley widens to about 200 yards at the bottom, with steep cliffs of friable sandstone rising high on either side, we found three small springs close together. They issue amongst reeds, at the foot of a low terrace projecting from the rock wall on the west. Their water tasted perfectly fresh, though the little brook that they feed becomes brackish before it dies away a short distance lower down. The presence of drinkable water in this Thebais of absolutely bare ridges of much-eroded sandstone or shale accounts for the existence here of the numerous small caves, which once served as Buddhist shrines and monastic quarters. The very steep cliffs to the west contain at least six of these caves, along a front not exceeding a quarter of a mile. The somewhat lower spur to the east (Fig. 354) shows four close together, with several others hidden away in narrow side ravines or buried under detritus. The little ridge or terrace already mentioned, running across the bottom of the valley, appears to have once borne a series of Stūpas; but of these even the foundations were difficult to trace, owing to the burrowings of treasure-seekers.

Main group of cave-shrines. Of the caves on the western side, a small cella situated about 30 feet above the flat ground is the most accessible. As it contained a circumambulatory passage, it certainly had served as a shrine. The front had fallen in, and the interior was for the most part filled with hard stratified mud, which the rain had washed in. Five small niches in the central block of rock, and above the entrances to the side passages, retained traces of painting. About 200 yards farther south lies the main group of caves. The highest of these, seen on the extreme left of the photograph, and marked Jig. 1 in the sketch-plan (Pl. 44), was pointed out to me as that where Ṣāhib 'Alī, the Indian Ak-sakāl of Kuchā, guided by one of his local factotums, had dug up, about seven years (?) before, a large packet of manuscript leaves, which he had subsequently transmitted to Sir George Macartney. It is situated at a height of about 120 feet, and comprises, as the plan shows, a living apartment measuring about 12 feet by 14, provided with a window. It is entered through a passage 4 feet wide which communicates with it at the end by a doorway 3 feet wide. Grooves sunk into the floor and into the rock above prove that this was once closed by a wooden door. The northern wall of the living apartment holds a shallow recess for a fire-place, with five small receptacles above it intended to serve as cupboards.

MS. fragments from Jig. 1. The floor of the room was covered partly with a thick layer of dust and partly with refuse of straw and matting. Minute fragments from various paper manuscripts showing Brāhmī characters of the Central-Asian Gupta type abounded among this refuse. I also recovered some twenty fragments of a similar character but larger, showing how roughly Ṣāhib 'Alī's clearing was done. It is probable that the cave had been searched before, and perhaps more than once, by people burrowing for treasure, with consequent damage to its manuscript remains. Half a dozen paper fragments of larger size were recovered from the passage, together with a very small piece each of

[3] See above, ii. p. 808.

a palm leaf and a birch-bark manuscript. Insignificant as the written remnants are, they may yet help to determine the origin of manuscripts from Kuchā which have been purchased at different times by the Kāshgar Consulate General and otherwise for the Indian Government collection, and which were formerly in Dr. Hoernle's charge.[4]

Farther to the north, and some 50 feet lower down, lies the cave-shrine Jig. II (Pl. 44). It comprises a cella, 17 feet wide and over 10 feet deep, with a passage running round the sides and behind the central portion of rock; this once held a stucco image in a niche. The front of the cella has fallen in and with it most of the plastered ceiling. What remained of the latter was decorated with a painted lozenge diaper, now much injured; like the traces of a seated Buddha painted in the image niche, it suggested old and good work. The clearing of the cella and passage yielded no finds. About 60 yards to the north and on a slightly lower level there is a large vaulted cave, about 31 feet wide and over 21 feet deep in its present broken condition. It looked like a hall, intended perhaps for monastic gatherings. Its front had fallen in, and masses of fallen rock covered the floor to a considerable depth. About 50 yards to the north there lie two caves now communicating with each other through an opening, apparently recent, in the thin rock partition which divides them. The roughly cut rock walls were blackened with smoke, and the layer of earth and straw refuse covering the floor showed signs of having been repeatedly burrowed into. The larger of these caves, about 18 feet wide and 12 feet deep, looked like a natural recess of which the walls had been smoothed. Through a hole in the floor, which had partly given way, a similar recess, narrowing tunnel-like westwards, had become accessible. Cave-shrines near Jig. II.

On the eastern side of the valley the caves were all small, and had suffered from the water and mud brought down by occasional rain from slopes of decomposed rock. The detritus that covered these slopes probably hid some excavations altogether, and made the ascent to some of the higher caves distinctly difficult. The best preserved of these was a small but carefully cut cella, only 5 feet by 6, situated about 80 feet above the brook. I found its floor completely cleared. A troublesome climb from this point towards the northern end of the spur, seen on the extreme left of the photograph, brought me past a completely collapsed cella to the narrow crest. On this, at an elevation of some 200 feet, I found two caves, for the most part filled with deposits of mud; their plan proved that they had served as monastic quarters. One of them, Jig. III, shown in Pl. 44, had its entrance at an inside corner, to which a rock-cut passage gave access. It was cleared without anything being found. On a small terrace below it, I noticed remains of charred wood, with the clayey soil below burned red, apparently indicating that a small shrine, built of timber, had once stood here and had been destroyed by fire. Pottery debris was to be found all the way up this eastern spur, a sign of prolonged occupation. Caves on eastern spur.

[4] For an inventory of MS. fragments in Sanskrit and Kuchean, see Prof. Sten Konow's Appendix *F*; also Mr. Pargiter's Appendix *E*.

Apart from the MS. remains, the following small objects were found here:

**Jig. I. i. 01. a. Fr. of oblong wooden tablet,** one end rounded, with hole through it; other end broken off. *Obv.* blank. *Rev.* somewhat sand-encrusted. Traces only of one l. of Brāhmī (?) script along one edge. Wood hard. 6″ × 3¼″ × ⅜″.

**Jig. I. i. 01. b. Fr. of wood,** covered each side with layer of clay over which appears to have been a layer of fine plaster on which were written chars.; but surface almost entirely destroyed, and chars. (if such) the merest fragments. 2 13/16″ × 1 3/16″ × (max.) 5/16″.

**Jig. I. i. 05. Fr. of iron or steel (?) knife-blade;** one-edged, straight, with tang, of type Kao. III. 0172, Pl. LXXI. Blade broken off 1¼″ from tang. Back, flat. Fair condition. Length with tang 2⅛″, gr. width of blade ¼″.

**Jig. I. i. 06. Fr. of ornamental bone (?) plate,** apparently formerly riveted on to some flat surface. Long and narrow, with one edge straight, and cut down at right angles to face. Other edge (bevelled) at first straight, then cut in long tongue-like curve to join other in blunt point. Other end broken off, but may also have been origin. pointed. Two holes drilled through for attachment to surface below, a short black horn rivet still remaining in one. Length 2 3/16″, gr. width ⅝″.

Caves in side ravines.

It is probable that the layer of detritus washed down by rain hides more small caves in the ravines opening to the south-east of this spur. Their half-buried entrances are difficult to distinguish from natural cavities cut out by the action of water. But only one such cave was known to my guides. It was reached by ascending a narrow ravine, only a few feet wide at the bottom, for about a quarter of a mile, and then clambering up a steep slope of detritus. Here we found a small cella measuring 6 feet by 8, and provided at the back with a circumambulatory passage 4 feet wide. The walls still retained their white plastering, but neither there nor in the niches on each side of the square central block was any painting traceable. The floor both in cella and passage had been previously dug up. Finally I may mention a cella that I visited, about a quarter of a mile below the springs on the lower slope of the western spur. Its front was completely broken away, and the interior was filled with hard stratified mud to a height of about 6 feet. But above the back wall remains of a frieze still showed traces of fresco decoration. Its mouldings receded towards the ceiling in a manner suggesting imitation of a timber-built roof.

The general impression I gained at this 'Ming-oi' of Jigdalik was that the presence of springs in these desolate barren hills accounted for its occupation in Buddhist times as a sacred site of the 'Svayambhū-tīrtha' type. The physical conditions of the locality do not appear to have undergone any essential change since that period. This observation has some geographical interest as it suggests that 'desiccation' has not greatly affected this outlying hill chain of the T'ien-shan since Buddhist times.

## Section II.—PAST AK-SU AND MARĀL-BĀSHI TO KĀSHGAR

Journey along high road to Ak-su.

The visit to the 'Ming-oi' of Jigdalik marked the close of my archaeological field-work in the Tārīm basin on this journey. The necessity for an early return to Kāshgar, where much work awaited me, and the short time available, obliged me to keep to the high road leading past Ak-su and Marāl-bāshi. It was a route not otherwise unwelcome; for I had not hitherto had occasion to follow and survey it, except for short stretches near those two towns; and it is certain on broad topographical grounds that since medieval times the main line of communication with Kāshgar cannot have lain far away, however different may have been the route in use at an earlier period.[1] By following the regular trade route I was able to cover the 370 miles still separating me from Kāshgar in seventeen days. The speed with which I travelled, and the fact that this portion of the great northern high road has frequently been followed by European travellers since the days of Benedict Goës, will account for my now confining myself to a few general observations regarding it.

Passage from Bai basin to Ak-su.

Communication between the basin of Bai, with its abundant resources of irrigation, and the stretch of more or less continuous cultivated ground to the east of the main oasis of Ak-su, is greatly facilitated by the ease with which the barren hill range that encircles the basin on the south is crossed between Yaka-arik and Kara-yulghun. This range, an outlier of the central T'ien-shan, rises farther to the east, towards Kuchā, by very steep and deeply eroded slopes to heights between 2,000 and 3,000 feet above the Muz-art river. Westwards it falls off, near Yaka-arik (Map No. 12. c. 1), into a low plateau covered with small broken hillocks, before it rises again and takes a turn to the north-west. Thus the watershed can easily be crossed by cart traffic between the village of Yaka-arik and the small roadside station of Jorga at a relative elevation of only about 300 feet.[2]

[1] Regarding the more northerly and somewhat more direct line of the ancient high road traced by me in 1908 and 1913 towards Marāl-bāshi, cf. *Serindia*, iii. pp. 1307 sq., and above, i. pp. 77 sqq.; for its alternative continuation thence westwards, see above, i. pp. 70 sqq.

[2] For the heights observed by aneroid on my route between Kuchā and Kara-yulghun and determined by Dr. J. de Graaf Hunter, cf. Addendum to his Appendix *B* in *Memoir on Maps*.

The passage of the much-decayed spurs, with their extensive glacis of gravel, which adjoin to the south-west is equally easy, and a long descent, not altogether without water, brings the traveller to the village of Kara-yulghun, the easternmost of the small oases belonging to the district of Ak-su.[3] Thence both the 'Old' and the 'New Town' of Ak-su can be reached by two easy marches (Map No. 12. A, B. 2). Cultivation of most of the ground traversed is rendered possible by an adequate supply of water from the branching beds of streams fed by the snows of the T'ien-shan, south of the Tengri-khān massif.

Chinese notices of *Ak-su*.

I have already discussed in *Serindia* the brief notices that Chinese historical records devote to the territory of the present Ak-su, mentioned in the Han Annals and the *Wei lio* under the name of *Ku-mo* 姑墨 and in the T'ang Annals and other later texts under diverse designations, as *Po-huan* 撥換, *Wei-jung* 威戎, &c.[4] I have noted in the same work the observations that I was able to make on the geographical factors determining the political and commercial importance of Ak-su, and as to the probable reasons for the inadequate use, in modern times, of the abundant resources for irrigation afforded by its rivers.

Survey work by Lāl Singh.

The stay which the very attentive reception accorded to me by Mr. Chu Jui-ch'ih 朱瑞墀, the Tao-t'ai of Ak-su and an old acquaintance, obliged me to make on May 18th–19th at the 'Old' and the 'New Town', respectively, gave me a fortunate opportunity of meeting Lāl Singh again, and arranging for further survey work by him. Since leaving Kuchā he had moved, over little-known ground, along the foot of the T'ien-shan to the point where the Muz-art-daryā debouches from the mountains.[5] From there, notwithstanding the early season, he had carried his plane-table survey up the still snow-covered head-waters of the river, and ascended the glacier over which the route towards Ili crosses the watershed east of the great massif crowned by the Tengri-khān peak, 23,600 feet above sea-level (Map No. 11. A. 4). The local help and guidance which the obliging Tao-t'ai readily promised now made it possible for me to let the Surveyor proceed to Kāshgar by a new route. It led him, for the most part, between and along those utterly barren hill ranges of the outermost T'ien-shan stretching to the north-east and south-west of the small oasis of Kelpin, which I reached in 1908 from the north.[6] Lāl Singh was thus able to extend our surveys over a considerable area which had previously remained wholly unexplored,[7] before he rejoined me at Kāshgar, in the first week of June, via Kalta-yailak.

Route from Ak-su to Marāl-bāshi.

The line followed by the direct route from Ak-su to Marāl-bāshi must at all times have been determined, as it now is, mainly by the places where travellers could secure water for themselves and their transport animals; for the route lies throughout in the flat alluvial plain between the Yārkand river to the south and the outermost chain of the T'ien-shan to the north. In ground of this description, changes within historical times in the volume or the direction of the surface drainage brought by rivers are bound to leave definite marks. Hence however imperfect the observations which my rapid journey allowed me to make, I will briefly record them here, if only for the interest of comparing them with corresponding observations in other parts of the Tārim basin. Before mentioning the indications of such changes, I will give a succinct account of the present route, which we covered in six rapid marches, amounting to a total estimated distance of nearly 150 miles.

[3] Notwithstanding the facilities of this road, the route leading along the southern foot of the outer hill chain appears to have been preferred, down to T'ang times, for direct communication between Kuchā and Ak-su, as shown by the T'ang itinerary reproduced by M. Chavannes, *Turcs occid.*, p. 8, and discussed above, ii. pp. 817.

The erroneous location at Yaka-arik, a modest village of about a hundred houses, of *Po-huan* (*recte* Ak-su), proposed by the *Hsi yü t'u chi*, was duly rectified by M. Chavannes, *T'oung-pao*, 1905, p. 553, note 1.

[4] See *Serindia*, iii. pp. 1297 sq.

[5] See Maps Nos. 17. A, B. 1; 12. B–D. 1.

[6] Cf. *Serindia*, iii. pp. 1304 sqq.

[7] See Map Nos. 7. A, B. 4; C. 3; 4. B–D. 4.

Irrigation resources of Ak-su.

The first of these marches brought us close to the south-western edge of the area of continuous cultivation irrigated by canals taking off from the left bank, near the junction of the Taushkan-daryā and Kum-arik-daryā. Notwithstanding the early season, there was abundance of water flowing both in the united bed of the two rivers, where the high road fords it near Chok-tal, and in the western branch, known as the ' Kōne-daryā ' and crossed by a bridge. This afforded fresh proof of the fact, already noted, that the area at present cultivated in the main oasis of Ak-su is much smaller than that which the volume of water available at all seasons in the two rivers would permit to be tilled.[8] Beyond the straggling fields which mark spasmodic attempts at cultivation near Khangung, the last hamlet, the road leads for some 30 miles along the line where the stony Sai, stretching down from the foot of the outermost hill range, known as Ingan-tāgh, meets the flat clayey steppe covered with low scrub, mainly tamarisk. Of the wells sunk at three desolate roadside posts, only those of Shōta-kuduk contained fairly drinkable water.

Station of *Chilan*.

The station of Chilan lies where the present road line, continuing its direction to the south-west, leaves the edge of the gravel glacis. Here the houses of some three dozen families cluster round two ruined forts. It marks the eastern extremity of the area to which water derived from the drainage of the Kelpin basin (Map No. 7. B. 3) can at present be brought beyond the newly reclaimed village lands of Achal, which I had passed in 1908.[9] On topographical grounds we may safely assume that even in earlier times the main road towards Kāshgar lay through Chilan. But beyond it there is strong reason to suppose that the ancient route, at least down to T'ang times, followed a more direct, westerly line through desert ground, now wholly waterless, past the ruined sites of Chong-tim and Lāl-tāgh.

Earlier line of road to Marāl-bāshi.

I have already discussed the archaeological grounds upon which this belief is based,[10] and a glance at the map strongly supports it ; for it shows that the almost straight route leading from Chilan past those two sites, and through the gap guarded by the towers of Arach, to Marāl-bāshi, is some 15 miles shorter than the line followed by the present high road. The need for water compels the latter to make a detour to the south, in order to reach a terminal river-bed known as *Kara-köl-jilga* ; this receives water from the marshes to the south of Tumshuk which are fed by the summer floods of the rivers of Kāshgar and Yārkand (Map Nos. 7. C. 4 ; 8. B. 1). Before the Kara-köl stream is struck at the station of Yaka-kuduk, no water is to be found on the road beyond Chilan, except at the brackish wells of Yaide. Lack of time and this difficulty about water unfortunately made it impossible for me to search the desert westwards for the remains of those towers at Soksuk-shahri and elsewhere, along the ancient route between Chilan and Chong-tim, of which I had heard in May, 1908, on my way from Kelpin.[11]

Change of road beyond *Tumshuk*.

From Yaka-kuduk onwards the road keeps more or less close to the left bank of the winding Kara-köl stream, lined for the most part by luxuriant Toghrak groves as far as the station of Chādir-köl. Some six miles beyond this point, the road brought us to a long stretch of ground covered with patches of new cultivation. They belonged to the village of Ak-tam, which I found

[8] Cf. *Serindia*, iii. p. 1296. The volume of the Ak-su river as measured on May 20th at the ford below the ' New Town ' amounted approximately to 1,480 cubic feet per second. That of the Kōne-daryā could not be accurately determined, owing to the great depth of the bridged channels and the rapidity of the current ; but it was probably nearly twice as great. To this must be added the water carried by the canals on the other side of the Kōne-daryā. Much of this was running to waste in neglected fields passed beyond Sai-arik (Map No. 7. D. 3).

[9] Cf. *Serindia*, iii. pp. 1304, 1306.

[10] See *ibid.*, iii. pp. 1307 sq. ; above, i. pp. 77 sqq.

[11] Here it may be noted that the old river-bed, crossed by the road about 5 miles south of our camp at Yaide and dry at all seasons, was supposed by my local informants to be connected with the old bed of the same name which skirts the foot of the Chōl-tāgh to the NW. of Tumshuk (Map No. 8. B. 1) and runs on into the now waterless desert south of Chong-tim. In all probability it was the irrigation from this bed that made occupation of this and the adjacent ' Tati ' sites possible down to T'ang times and in parts even later ; cf. *Serindia*, iii. pp. 1308 sqq.

had greatly extended its limits since my former visit to this region. I had already become familiar in 1908 with the vicinity of the neighbouring village of Tumshuk and the road leading thence to Marāl-bāshi. When recording my observations, I had occasion to refer to the significant change which the line of the road has undergone here within living memory, where it winds round the foot of the small isolated hill chains rising island-like above the plain to the east and north-east of Marāl-bāshi.[12] It will suffice to point out here that, owing to the marshy condition in which annual inundations from the Kāshgar river kept most, if not all, of the low ground separating the Ōkur-mazār-tāgh from the Mazār-tāgh to the south-west, the comparatively large area now occupied by the lands of Chār-bāgh and adjacent villages was uncultivable and difficult for traffic until the Chinese reconquest in 1877. Consequently, before the gradual reclamation of that ground, the old line of the high road from Tumshuk, instead of skirting the southern extremity of the Ōkur-mazār-tāgh, lay to the north of it through the gap of Arach (Map No. 8. B. 1), which divides it from the equally rugged and barren hill chain of the Bēl-tāgh.[13] The more direct and far older route connecting Ak-su with Marāl-bāshi must have lain through this same gap, flanked by the remains of ancient watch stations, past the ruined sites of *Chong-tim* and *Lāl-tāgh*.

This comparatively modern diversion of the road deserves attention, because it may help to throw light on a physical change of wider geographical and antiquarian interest. I refer to the much-discussed question of the so-called 'desiccation' within historical times, in so far as it affects the Tārīm basin. As I have recently had occasion to explain in some detail elsewhere, the apparent contradiction between the two main facts brought out by the available archaeological evidence on this question can best be reconciled by assuming that the volume of water brought down by the rivers into this great drainageless basin of innermost Asia has gradually diminished (probably through the gradual reduction of the ice reserves stored up since the last glacial period in the glaciers of the high mountain ranges feeding those rivers); while the climatic conditions which account for the extreme aridity prevailing in the basin itself have undergone no appreciable change during the two thousand years or so over which our historical and antiquarian data extend.[14] In the absence of reliable direct records it may be difficult to determine to what extent this probable reduction in the volume of the summer floods which reach the deltaic area of the Kāshgar-daryā to the east of Marāl-bāshi has facilitated the extension of cultivation between the Mazār-tāgh and Ōkur-mazār-tāgh, with corresponding progress in the drainage of previously boggy ground. But I think we may safely recognize here a modern illustration of the physical change that has rendered the belt of ground marked by the remains of Lāl-tāgh, Chong-tim, and neighbouring sites wholly waterless since T'ang times, and has thereby caused the high road from Ak-su to be diverted to the present more southerly line.

Change connected with physical causes.

A variety of topographical considerations support the belief that the tract in the vicinity of Marāl-bāshi must have always been favourable for the formation of a 'terminal oasis' on the Kāshgar river. I need only mention the advantages that irrigation would derive from the kind of natural barrage formed by the hill chains, which here stretch across the river's line of drainage, and from the comparatively close approach of the course of the Yārkand-daryā. This makes it possible, nowadays, for the irrigation of Marāl-bāshi to be supplemented to a very considerable extent by water from the Yārkand river. It is carried by the Zai canal, representing an old bed branching into the big lake-like reservoirs of Anār-kōl and Kōlde.[15] Importance must have

Advantages of position of Marāl-bāshi.

[12] Cf. *Serindia*, iii. pp. 1309 sqq.

[13] See *ibid.*, iii. pp. 1311 sq.

[14] See my paper 'Innermost Asia', *Geogr. J.*, 1925, pp. 487 sqq.

[15] See Maps Nos. 5. D. 1, 2; 8. A. 1; Hedin, *Reisen in Z.-A.*, pp. 225 sq.

always attached, also, to the position of Marāl-bāshi, as the most convenient point for the bifurcation of the routes from Ak-su to Kāshgar and Yārkand respectively.

It is therefore curious that no definite mention of Marāl-bāshi can be traced in the Chinese historical records so far accessible in translation. The identification of Marāl-bāshi proposed by M. Chavannes with *Wo-shê-tê* 握瑟德, which Kao Hsien-chih's biography in the T'ang Annals refers to as a locality passed on his march from Kuchā to the Pāmīrs, rests upon this being placed ten marches from *Po-huan* or Ak-su and the same distance from *Su-lê* or Kāshgar.[16] Nor is it possible to recognize a distinct mention of Marāl-bāshi in the itinerary which the *T'ang shu* gives of the route from Po-huan to Su-lê.[17] I will therefore defer the analysis of such data as may otherwise be gathered from this itinerary until we have completed our rapid survey of the actual high road to Kāshgar.

## Section III.—A T'ANG ITINERARY FROM AK-SU TO KĀSHGAR

Modern road to Kāshgar.

Of the five long marches under a very hot sun which carried me from Marāl-bāshi to the neighbourhood of the 'New Town' of Kāshgar, the first three lay mostly close to the present main bed of the Kāshgar-daryā. This route, as the Maps (Nos. 8. A. 1; 5. C, D. 1) show, represents indeed the shortest line between the two places; but there is no archaeological or other evidence to indicate that it was the line followed in ancient times. The vagaries of the river-course meandering in a flat alluvial plain, and the difficulty inevitably caused by inundations at the time of the summer floods, raise a clear presumption against this. I was in fact informed that whereas the present road keeps to the river's left bank between the stations of Chürge and Lung-kou, a distance of close on 60 miles, it had lain, as it does elsewhere, to the south of the river until long after the close of Yāqūb Bēg's régime. This statement was supported by the distinctly new look of the straggling patches of village land that we passed at rare intervals along this portion of the road. We were told that Ördeklik, the largest of these colonies, comprising about 150 households, was only about thirty years old. Here, as elsewhere along the lower course of rivers passing through the flat of the Tārīm basin, cultivation is much hampered by constant changes in the river-beds, and the consequent difficulty of maintaining canal heads. Evidence of this could be seen at more than one point, where fields laid out not many years ago had been abandoned owing to irrigation failing from this cause.

Return past Faizābād to Kāshgar.

We crossed the narrow and deep-cut bed of the river to its right bank at Lung-kou. The ground here presented the same forlorn appearance, until at Yangi-ābād we reached the eastern extremity of the practically continuous cultivated tract of Kāshgar. Fine orchards and groves of big poplars from here onwards attested prolonged occupation, such as might be expected on ground to which facilities for adequate irrigation are assured by its position on the alluvial fan of a considerable river, not too far away from where it leaves the mountains. The comparative nearness of these, and of their vast stores of snow and ice, to which the oases below owe moisture and life, was strikingly brought home to me by the magnificent view which a morning of exceptional clearness revealed on the march from Lung-kou to Faizābād. It comprised the whole of the high glacier-clad range dividing the Pāmīrs from the Tārīm basin, and extended from the dome of Muz-tāgh-atā in the south to the head-waters of the Kāshgar river. It seemed a visible proof that my long journey round the huge basin of innermost Asia was drawing to a close. Faizābād, where I met with a kindly official welcome and halted for a night, was the last of the district head-quarters which I still had to visit in the Tārīm basin. From here, on May 30th, a ride of some thirty-two miles,

[16] Cf. Chavannes, *Turcs occid.*, p. 153 note.

[17] See below, p. 839.

for the most part through well-cultivated village tracts, and a short one next morning along the orchard-lined banks of the river, brought me back once more to the hospitable shelter of Chīnī-bāgh, the British Consulate General at Kāshgar, and the base of all my Turkestān journeys.

T'ang itinerary from Ak-su to Kāshgar.

After this brief survey of the line actually followed by the high road from Ak-su to Kāshgar, we may turn to the only early account that I am able to trace, of the route connecting these two places. It is furnished by a Chinese itinerary contained in the T'ang Annals to which M. Chavannes makes a passing reference,[18] and of which Dr. L. Giles has very kindly provided me with a translation. This itinerary runs as follows: 'From Po-huan 撥換 and Sui-shê 碎葉 you go south-west and cross the Hun river 渾河. 180 *li* from here is Chi-cho Kuan 濟濁館, the ancient Ho-p'ing P'u 和平鋪. Continuing you pass through the old city of Ta-kan 達幹, and after 120 *li* arrive at Yeh-chê Kuan 謁者館. 60 *li* farther on you reach the city of Chü-shih-tê 據史德 in the territory of Kuchā 龜茲. One account says that Yü-t'ou Chou 鬱頭州 is on the Ku-shih (Orphan Rock) Hill 孤石山 on the north bank of the Ch'ih Ho (Red River) 赤河. Crossing the Red River and passing Mount Ch'i 岐山, after 340 *li* you arrive at Chia-lu Kuan 葭蘆館. Farther on you pass the city of Ta-man 達漫, and after 140 *li* arrive at Su-lo Chên 疏勒鎮, which is surrounded by mountains on three sides, south, north, and west.'

General direction agrees with present road.

The starting and closing points of the itinerary are definitely fixed. There can be no doubt that *Po-huan* 撥換 corresponds to the present Ak-su, and *Su-lo* (Su-lê) 疏勒 to Kāshgar; while the mention of *Sui-shê* 碎葉, a town which, as preceding passages of the text clearly show, must be looked for in the vicinity of the modern Tokmak, may, according to M. Chavannes, be considered a faulty interpolation. Nor is it possible to doubt that the itinerary describes a route which, in its general direction, agrees with the present high road; for in the first place the south-westerly bearing of the latter at the start is correctly indicated, and in the second the only alternative route which might come into consideration—that which leads first westwards to Uch-Turfān and thence up by the Taushkan river and across the hills past Kara-jol and Sughun to Kalta-yailak and so on to Kāshgar[19]—is, in its initial portion, separately described in a preceding passage of the same Chinese text.[20] The Hun river 渾河, the crossing of which is mentioned at the outset, can safely be identified with the united Ak-su river; for this is clearly indicated by two other passages in the same text of the *T'ang shu* which mention the river by its full name of *Ssŭ-hun Ho* 思渾河, and correctly place it to the south of Po-huan or Ak-su and its river, the present Kum-arik-daryā.[21]

Uncertainty of distances indicated.

But once beyond this safe start on the route leading towards Marāl-bāshi, we are confronted by uncertainties as regards the identification of the localities successively named in the itinerary. None of them are to be found in the other Chinese texts accessible to me in translation, and it is impossible to place much reliance on the distances indicated between them. If judged by their aggregate, 840 *li*, they are hard to reconcile with the actual distance of about 301 miles between Ak-su and Kāshgar, as measured on our marches by the present high road, and the ratio of 5 *li* to the mile which evidence derived from the other Chinese itineraries in and near the Tārīm basin indicates as that to be adopted for road measurements of the T'ang period.[22] At the same time we cannot feel sure whether the enumeration of distances is complete; for at least two places are named in the itinerary without mention of separate distance measurements. For these reasons the following

[18] Cf. Chavannes, *Turcs occid.*, p. 10, note. The itinerary is quoted by Dr. L. Giles from *Hsin T'ang shu*, XLIII B. p. 18.

[19] See Maps 7. A. 3; B, C. 2; 4. B, C. 4, D. 3; 5. A, B. 1.

[20] See Chavannes, *Turcs occid.*, p. 9; also *Serindia*, iii. pp. 1299 sqq.

[21] See Chavannes, *Turcs occid.*, pp. 8 sq. The identification with the Tārīm there proposed is due to the erroneous location (subsequently abandoned) of Po-huan at Yaka-arik; cf. above, ii. p. 835, note 3.

[22] Cf. *Serindia*, ii. pp. 734 sq.; also iii. p. 1544, s. v. *li*.

locations, which general topographical considerations suggest to me, must be considered as partly conjectural.

Location of *Chi-cho Kuan* and *Yeh-chê Kuan*.

I should be inclined to seek *Chi-cho Kuan*, the 'inn' 館 of Chi-cho 濟濁, near Chilan, a point which the road was bound to pass at all times, and which, owing to its assured water-supply, must always have formed an important halting-place on a stretch of the route passing arid wastes on either side. The mention of the old city of *Ta-kan* 達乾 beyond it suggests a site even then abandoned to the desert. The distance of 120 *li* indicated to the next stage, *Yeh-chê Kuan* 謁者館 ('the visitors' inn'), and the significant term of *Kuan* 館 occurring in its designation seem to point to the site of Chong-tim on the ancient and more direct road line. If this location were right, the 'city of Chü-shih-tê' 據史德, situated 60 *li* farther on, might well be sought to the south-west of the ruins of Lāl-tāgh, where 'Tati' remains indicate the former existence of a settlement of some size.[23] The distance recorded would agree well with this location; for the direct distance between the two last-named sites is, as the Map No. 7. B, C. 4, shows, just one half of that from Chilan to Chong-tim. But the reference made to Chü-shih-tê as a place 'on the boundary line of Kuchā', i. e. Ch'iu-tzŭ 龜茲, is rather puzzling. It is difficult to believe that the territory of Kuchā could have extended so far westwards, or that, if reference to Chü-shih-tê as a border town were intended, the text would have been worded as it is; for the usual practice in these itineraries is to mention the first place in the new territory reached and not the last of the territory left behind.[23a] If it were permissible to assume that some mistake has crept into the text here one might suggest that the name of Ch'iu-tzŭ (Kuchā) has replaced that of Ch'ü-sha or *Ch'ia-sha* 佉沙, a rendering of the local designation of Kāshgar recorded by Hsüan-tsang and the *T'ang-shu*.[24]

Mention of 'Red River', i. e. Kāshgar-daryā.

That the T'ang itinerary has here brought us to the immediate vicinity of the hills east and north-east of Marāl-bāshi is made quite clear by what it next tells us about '*Yü-t'ou Chou* 鬱頭州 on the *Ku-shih* Hill 孤石山 on the north bank of the *Ch'ih Ho* 赤河 (Red River)'. It appears to me very probable that this refers to the extensive site to the north-west of Tumshuk, marked by the ruins of large Buddhist shrines, an ancient circumvallation and numerous dwellings found on, and close to, the southern end of the rocky hill chain known as Chöl-tāgh.[25] Through the wide gap between it and the smaller Tumshuk-tāgh to the south there passes a dry river-bed, which finds its continuation partly in the Ghōra-akin, and which undoubtedly represents an old terminal branch of the Kāshgar river. Considering the general direction which the ancient route must have followed past Marāl-bāshi and the isolated hills to the east of it, there seems to me to be little doubt that the Kāshgar-daryā is meant by the 'Red River'. The identical name, in the form of *Kizil-su*, is still borne nowadays by the main branch of the Kāshgar river, which passes to the south of the 'Old Town' of Kāshgar and by the river as a whole higher up (Map No. 2. D. 2).

'Mount Ch'i' identified with Mazār-tāgh.

We have another definite topographical indication as to the line of the ancient road where we are told that it 'crosses the Red River and passes Mount *Ch'i* 岐山'. I believe this mountain may safely be identified with the Mazār-tāgh, the highest and by far the most conspicuous of the hills which rise above the flat alluvial plain in this region. Its rugged mass stands up to a height of over 2,500 feet above the Marāl-bāshi oasis, and culminates in two easily distinguished peaks, for which our clinometrical readings indicated elevations of 6,330 and 5,910 feet respectively. These peaks attract the traveller's attention from a very considerable distance, and obviously

[23] See above, i. p. 78.

[23a] Cf. Chavannes, *Turcs occid.*, pp. 6, 9, 13; *Serindia*, iii. p. 1331.

[24] See Chavannes, *Turcs occid.*, p. 121; for other Chinese renderings, cf. *Anc. Khotan*, i. p. 48.

[25] See Map No. 8. B. 1. Regarding this site, repeatedly visited by European travellers and partially explored by M. Pelliot, cf. *Serindia*, iii. p. 1309.

account for the name recorded in the T'ang itinerary ; for *Ch'i* 岐 literally means 'twin peaks'.[26] The high road at present passes close to the foot of the north-western outlier of the Mazār-tāgh, as seen in Map No. 8. A. 1, and it seems to me very likely that it did so in ancient times ; for the slight rise of this ground must always have been appreciated by traffic passing over an area liable to inundation by summer floods, and consequently offering, at times, difficulties for camels and carts. In order to reach this ground the road had in those days to cross the 'Red River', i. e. the Kāshgar-daryā, just as it does now north of the Mazār-tāgh.

Location of *Chia-lu Kuan* and *Ta-man*.

As no fresh crossing of the river is mentioned we must assume that the road from the vicinity of Marāl-bāshi, right through to Kāshgar, kept to the south of the river. We have seen that in fact it did so until quite recent times.[27] The distance of 340 *li* over which the itinerary next takes us before reaching *Chia-lu Kuan* 葭蘆館 seems to indicate that the tract crossed by the road between the vicinity of Marāl-bāshi and Kāshgar contained, then as now, no settlement of any importance. The position of Chia-lu Kuan cannot be exactly determined. On general grounds I should be inclined to place it somewhere near Faizābād, where continuous cultivation from the Kāshgar side now starts. The proportion between the distance of 340 *li*, whether counted from the foot of the Mazār-tāgh or the site near Arach, and the 140 *li* reckoned to *Su-lo Chên* 疏勒鎮 the 'trading town of Su-lo', i. e. Kāshgar, would well agree with such a location. As to the position of the 'city of *Ta-man*' 達漫 passed on the way, I am unable to offer any suggestion. But it deserves to be noted that *Ta-man* 達漫 is the name of a Kagan or paramount chief of the Western Turks who reigned at the beginning of the seventh century A. D. and who is repeatedly mentioned in the T'ang Annals.[28]

Description of *Su-lo*, Kāshgar.

Finally I may point out how much the description of Su-lo, or Kāshgar, as being 'surrounded by mountains on three sides, south, north, and west', must appeal to any one whose eyes on a clear day have rested upon the magnificent panorama of glittering snowy ranges which stretch from far away above Sarīkol to the 'Celestial Mountains' in the north.

[26] Cf. Giles, *Chinese-English Dictionary*, 2nd ed., p. 108 (1103).

[27] See above, p. 838.

[28] Cf. Chavannes, *Turcs occid.*, pp. 3, 14, 51.

# CHAPTER XXV

## ACROSS THE PĀMĪRS

### Section I.—PREPARATIONS AT KĀSHGAR

Arrival at Kāshgar.

My arrival at Kāshgar on the morning of May 31st had brought me back to my familiar base in time to benefit by all the friendly assistance and official support which Colonel (since Brigadier-General) Sir Percy Sykes, who had temporarily replaced Sir George Macartney as H.B.M.'s Consul-General, could give me before his departure a week later for a shooting trip in the Russian Pāmīrs. Though I was so soon deprived of the congenial company of this distinguished soldier-statesman and traveller, his kind arrangements for my accommodation and for other facilities greatly assisted me in getting through the heavy work that detained me at Chīnī-bāgh until the beginning of July.

Repacking of antiques.

The most troublesome part of this work and that which took longest time was the careful repacking of my collection of antiques for its long and difficult journey across the Kara-koram to Ladāk and thence to Kashmīr. The assemblage of the requisite materials and the careful sorting and packing of the antiques, many of them of an extremely brittle and friable character, kept my assistants and myself busy for fully five weeks. It was due mainly to the care then taken that the fragile contents of those 182 tin-lined cases, after a difficult journey of over 800 miles through high mountain ranges and across ice-covered passes on camels, yaks and ponies, finally reached Kashmīr safely. Fortunately practical help was forthcoming, thanks to the presence of my old friend Khān Sāhib Badruddīn Khān, Ak-sakāl of the Indian traders at Khotan, who once again came to my assistance with the same efficiency that he had so often shown at his own place.[1] I had equal cause for satisfaction in finding that Chiang Ssŭ-yeh, my devoted travelling companion on my second journey, was as eager as ever to place his scholarship at my service in carefully deciphering and transcribing the Chinese documents recovered in the course of my explorations. The value of the service thus rendered by my learned and lamented friend will, I trust, be duly appreciated when the publication of all these records is completed through the efforts of M. Henri Maspero.

Proposed journey through Russian Turkestān.

Amid the mass of work which kept me fully occupied all through that hot month of June, none caused me more concern than the arrangements for my long-planned journey across the Russian Pāmīrs and through the mountains and valleys north of the Oxus. For many years past my eyes had eagerly turned towards this extreme east of Īrān and that part of the 'Roof of the World' under which it shelters. In the original proposals for my expedition, as submitted to the Government of India in 1913, I had conveyed the request that I might be enabled, with the permission of the Imperial Russian Government, to make my way from Kāshgar towards the Trans-Caspian railway and thus to north-eastern Persia and Sīstān by the route which the ancient silk trade may be assumed to have followed across the Alai and along the Kara-tegīn valley. I hoped

[1] See e. g. *Ancient Khotan*, i. p. 516; *Serindia*, iii. p. 1320.

that once on the ground I might be allowed by the Russian authorities to extend my visit farther south towards the upper course of the Oxus. But knowing that access to these parts had not been previously granted to British travellers I had not specifically included them in my programme.

More than a year before my return to Kāshgar I had, while in Kansu, requested the Foreign Department of the Indian Government to secure for me the special permission of the Russian Government to travel through Russian Turkestān. On April 14th, 1915, I learned to my great relief from the Indian Foreign Department that the requisite permission had been secured through H.B.M.'s Embassy at Petrograd. But on arriving at Kāshgar I found that Prince Mestchersky, the Russian Consul-General, had received no information on the subject. By the third week of June, as a result of telegraphic application made direct to H.B.M.'s Ambassador, he received instructions to permit me to enter Russian territory, but without any indication of the route I might be allowed to follow. Fortunately Prince Mestchersky, an enlightened official, proved ready to further my scientific aims, and on the strength of a telegram from Sir George Buchanan received by myself at the close of June reporting the approval of my tour by the Russian Foreign Office, issued a special permit enabling me to visit the Pāmīrs and all tracts along the Oxus. He in addition kindly provided me with most useful recommendations to the various Russian officers holding political charge in that region. For all this I am anxious to record here my deep sense of gratitude to Prince Mestchersky. Russian permission secured.

During my stay at Kāshgar I was re-joined by the two Surveyors whom, since leaving Korla, I had detailed on routes separate from my own. R. B. Lāl Singh had carried his plane-table work as close to the crest of the T'ien-shan range as the season and transport conditions would permit. From Ak-su onwards I had been able to arrange for his proceeding by a new route which led him over ground almost wholly unsurveyed, through the utterly arid hill ranges of the outermost T'ien-shan east and west of the small oasis of Kelpin.[2] Two weeks later Muḥammad Yāqūb also arrived safely. During a trying journey of over two months he had carried his plane-table work, somewhat rough as usual, along the left bank of the Tārīm from near the Konche-daryā to above Yārkand. Our camels which came with him had suffered a good deal from the heat of the season and from difficulties of the ground caused by the spring inundations along the riverine belt. Yet in spite of this and the hardships undergone by them during close on two years' work, mostly in desert regions, I was able subsequently to dispose of them at Yārkand with practically no loss to the Indian Government. Surveyors re-join.

On the 6th of July I at last found it possible to leave Kāshgar, after completing all arrangements for the safe passage of the eighty heavy camel-loads of antiques to India. But the summer floods in the K'un-lun valleys, due to the melting glaciers, would not as yet allow of the departure of this valuable convoy towards the Kara-koram passes. I was accordingly able to let Lāl Singh, to whose care I had to entrust it, set out meanwhile with me for a survey of the high snowy mountain chain which continues the Muz-tāgh-atā range to the head-waters of the Kāshgar river south-east of the Alai. Our route was the same as far as the prosperous oasis of Ōpal, and on the way to it, some miles beyond the suburbs of Kāshgar, the faithful Chiang Ssŭ-yeh (Fig. 355) awaited me to bid me farewell in time-honoured Chinese fashion. The reunion at his Ho-nan home or in Kashmīr that we both fondly hoped for was not to be granted by Fate; for in the spring of 1922 the best scholar who ever helped me in Asia passed away at his post in Kāshgar. Departure from Kāshgar.

Lāl Singh proceeded from Ōpal westwards to the head-waters of the Kizil-daryā or Kāshgar river. Thence he made his way round the northern end of the above-mentioned snowy range Survey on Kāshgar R. head-waters.

[2] See Maps Nos. 7, 4, 5.

to the great Pāmīr-like valley of Mōji west of it, which borders the watershed towards the Russian Pāmīrs on the lakes of the Rang-kul and Great Kara-kul.[3] By descending this valley he connected his survey with the work done in 1900 on my first expedition from the side of Muz-tāgh-atā. Then crossing the Ulūgh-art pass he rejoined me at Bostān-arche, situated in a high valley to the north-east of a conspicuous ice-clad massif of that range (Map No. 2. c. 3).

Dispatch of antiques to Kashmir.

There, on a small fir-clad alp[4] situated above a favourite Kirghiz camping ground at an elevation of over 10,000 feet (Figs. 357, 364), I was able to devote ten days of delightful coolness and seclusion to much hard work on reports, accounts, proposals about the collection of antiques, &c. There, too, the final arrangements were made for the long journey which by the middle of October brought the large convoy of 'archaeological proceeds', under the personal supervision of R. B. Lāl Singh, safely to their temporary place of deposit at Srinagar. He was assisted in this task by Naik Shamsuddīn and Surveyor Muḥammad Yāqūb, who also accompanied the collection to India. He was thus able to supplement our previous surveys by useful topographical work along the caravan route followed across the Yangi-dawān and by the uppermost Yārkand river to the Indian frontier on the Kara-koram pass.[5] Of my assistants there remained with me only young Afrāz-gul, who, I knew, would always prove useful, even where, as in Russian territory, neither topographical work nor excavations would be possible.

## Section II.—ALONG THE ALAI VALLEY

Across *Ulūgh-art.*

On July 19th, with a sense of freedom regained after weeks of clerical toil, I was able to start from Bostān-arche for the high meridional range before us and the Pāmīrs beyond. It was a great encouragement to feel that across them the road now lay open for me to those mountain regions north of the Oxus which, by reason of their varied geographical interest and their ethnic and historical associations, had attracted me since my youth. The route led up the main valley descending from the Ulūgh-art, and on the following day we crossed this high pass, about 16,600 feet above sea-level. From the narrow saddle, gained after a very steep ascent, the clouds lifting at intervals revealed a grand view across the wide valley of Mōji, flanked by the ice-crowned range on which we stood and by the mighty eastern rampart of the Pāmīrs. Below the pass there we could see the middle and lower reaches of a magnificent glacier about 10 miles long, descending from a high spur to the south.

Glaciers of Ulūgh-art.

The descent to where this glacier turns sharply to the west was extremely precipitous and impracticable for laden animals. No passage is left farther down between the flank of the glacier and the spurs on its north side against the foot of which it presses. So the track, difficult throughout, has to ascend these spurs in succession close to where small glaciers overhang and divide them. Fine 'hanging glaciers' flank the valley also on the south. By the time we had reached easier ground on plateaus overlooking the snout of the large glacier at the valley bottom, I felt duly impressed with the fact that I had passed the great mountain barrier of ancient Imaos, which divided Ptolemy's 'Inner' and 'Outer Scythia'. Pushing down past a small Kirghiz camp at Sarāt to the main valley below Mōji, I arrived the same night, after a walk and ride of 33 miles, at Kun-tigmaz. There I met Sir Percy Sykes returning to Kāshgar from the Pāmīrs with his

[3] See Map No. 2. A–C. 2.

[4] The conifers of Bostān-arche were, apart from wild poplars met lower down at Yolchi-moinak (Map No. 2. C. 1) and some white poplars at Daraut-kurghān, the last trees of any sort seen until we approached the head of the Rōshān valley near Saunāb. Their presence in this high valley, as also in others farther north of the same range (Map No. 2. B. 2), must obviously be attributed to the influence of the moister climate prevailing on the T'ien-shan, here approached by the meridional range.

[5] See Maps Nos. 6, 9, 10.

sister, the distinguished traveller and writer Miss Ella Sykes. During a day of happy reunion I was able to benefit once more by his expert advice regarding Khorāsān and Sīstān, a goal still distant.

Approach to Trans-Alai range.

On the morning of July 22nd we parted, Sir Percy and Miss Sykes turning towards the Ulūgh-art, while I set out to the north-west in order to gain the Alai. My route led up the wide valley of Mōji and Kiyak-bāshī (Map No. 2. A. 2) in which the northernmost feeders of the Gez river gather. Compared with the huge bare glacis of piedmont gravel which descends from the northernmost extension of the great meridional range, the stretch of grass-covered ground in the centre of the valley appeared very limited. It was being grazed at the time by the flocks of some thirty Kirghiz households. On the following day, on crossing the Kosh-bēl pass (about 13,800 feet) at the head of the valley, I gained my first view of the great Trans-Alai range where it stretches with peaks rising to more than 20,000 feet from west to east.[1] Below it passes in a deep-cut valley the main feeder of the Kizil-su or Kāshgar river. As we moved towards this, I was struck by abundant marks of ancient glaciation in the shape of old moraines and cirques covering the barren plateau between the side valleys of Kurumluk and Kum-bēl.

Ascent by Kizil-art R.

After camping in the latter valley, we crossed the Kum-bēl pass (approx. 13,600 feet) on the morning of July 24th. A descent of about 3,000 feet over very steep slopes then brought us to the bed of the Kizil-art river or Markan-su. This takes its rise on the south-eastern slopes of Mount Kaufmann, and in view of its great length must be considered the main feeder of the Kāshgar river. Our route led along its bed on that and the following day. Steep spurs descending to the river necessitated frequent crossings from one narrow terrace to another, but these did not cause much trouble. Below the debouchure of a side-stream coming from the high Kanish-khatan peak to the north we passed a cairn evidently meant to mark the Russian frontier. Beyond it the valley widened in places into small basins, now dry, marking the position of former lakelets. Kizil-kōl, the last of the basins that we passed, extended for close on four miles, and on the slopes to the south earlier shore-lines were visible to a height of some 200 feet above the lake. While encamped by this old lake bed on the night of July 25th we were visited by a snowstorm, and the temperature fell at 5 a.m. below freezing-point.

Meeting with Col. Jagello.

That morning an easy ascent over gently sloping plateaus brought us, after a march of about 11 miles, to the Kizil-art saddle, where the road practicable for cart traffic coming from the Russian Pāmīrs and the main valley of Shughnān crosses the Alai at an elevation of about 14,000 feet. Following this well-aligned road towards the Alai we reached the rest-house of Pōr-dōbe (also pronounced Bōr-tōpe by people from Western Turkestān). Not until near it did we meet with any wayfarer or camp, in the course of a march of close on a hundred miles from Kiyak-bāshī. At Pōr-dōbe I found the kindly Russian Customs Officer, M. Zampoin, just arrived from Irkesh-tam on the main Farghāna–Kāshgar road and was welcomed by the cheering news that Colonel Ivan D. Jagello, holding military and political charge of the Pāmīr Division, was expected to arrive next day on a rapid passage from his head-quarters to Tashkend. The fortunate chance of an early meeting with him was secured by a day's halt at Pōr-dōbe. Experience soon showed that even on the Indian side of the Hindukush border I could not have hoped for arrangements more complete or effective than those which proved to have been made on my behalf by Colonel Jagello both on the Pāmīrs and in the territories of Wakhān, Shugnān, and Rōshān, included in his charge. It

[1] For topographical details of the route followed between the Kosh-bēl pass and Daraut-kurghān in the Alai valley, see the Russian 10 verst to 1 inch map sheet R. 7. For general features of the Pāmīr and Upper Oxus region reference is recommended to the 1/M Sheets No. 37, 42 of the Survey of India, or Sheet 40° N. 72° E. (Pamir) of the French 1/M map of Asia (Service Géographique de l'Armée); also to the map accompanying Prof. A. Schultz's *Forschungen im Pamir.*

was due mainly to Colonel Jagello's willing help and forethought that I succeeded in covering so much interesting ground, far more than my original programme had included, within the comparatively short time available and without the loss of a single day. I shall always remember with sincere gratitude his friendly interest and all the kind assistance that I invariably received from him and also from his assistants, officers at the several Russian posts of the Pāmīr Division.

Historical interest of Alai valley route.

Prominent among the reasons which had prompted me from the start to plan the extension of my journey across the Pāmīrs and adjacent Russian territories on the Oxus, was the hope that I might thus be able to study on the spot questions of historical geography directly bearing on the routes along which the earliest intercourse between China and Western Asia had been carried on. This explains the special satisfaction I felt when on July 28th I started to travel down the whole length of that great Alai valley.[2] On the return from my first Central-Asian expedition in June 1901 I had been able to see only the head between the Taun-murun saddle above Irkesh-tam and the foot of the Taldik pass. Topographical facts, climatic conditions, and local resources all support the conclusion that through this wide natural thoroughfare, skirting the high northern rim of the Pāmīrs from east to west and continued below by the fertile valley of the Kizil-su or Surkh-āb in Kara-tegīn, there once passed the route which the ancient silk traders from China followed down to the Middle Oxus. Before I refer to that much-discussed record of classical geography preserved by Ptolemy, where Marinus of Tyre describes the progress in the opposite direction of the agents of 'Maēs the Macedonian' from Baktra to the country of the Sēres or China, I may briefly note the observations made on my passage down the Alai valley to Daraut-kurghān.

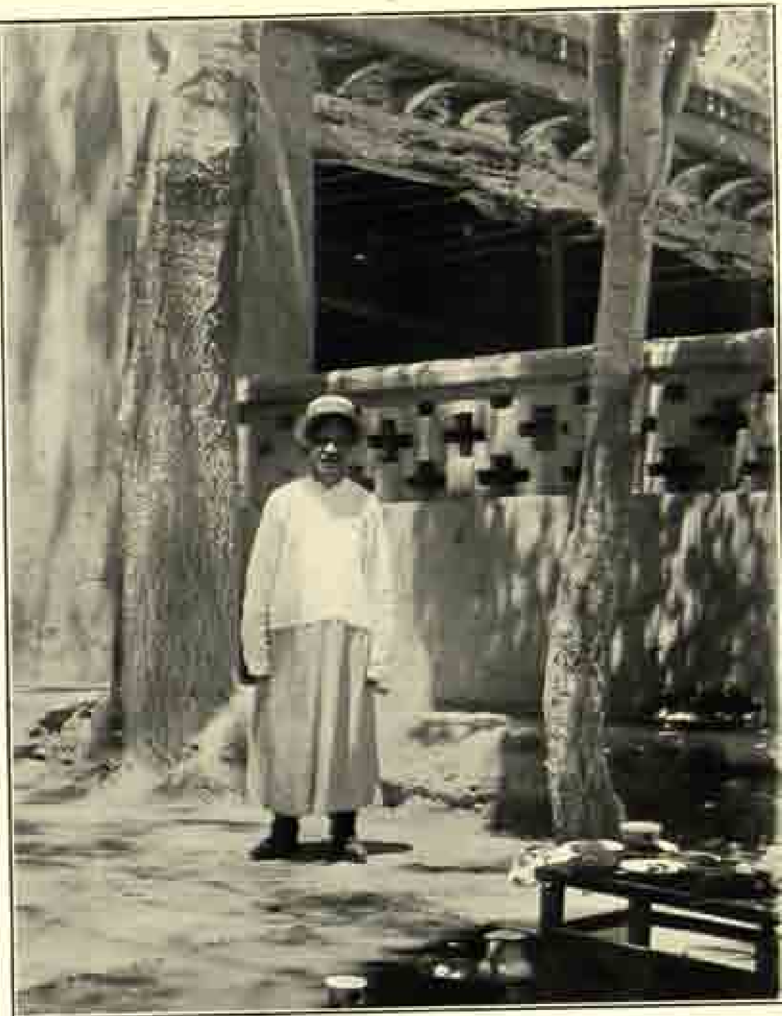
March down Alai valley.

Various practical considerations rendered it advisable to keep in contact with M. Zampoin, the Russian Customs Officer, who was bound for the same place, and this caused me to move down the Alai valley more rapidly than I should have otherwise done. It was fortunate, therefore, that on my start from Pōr-döbe on the morning of July 28th a view of that highest portion of the Trans-Alai was obtained (Fig. 359) which stretched to the west of Kizil-art and probably includes Mount Kaufmann, close on 23,000 feet; for during the rest of that long day's march light clouds kept the summits of the great range hidden. Our route first descended along a wide drainage bed known as Janaidar-sai, past grassy plateaus; then crossed the glacier stream of Kizil-akin which comes apparently from the north-eastern slopes of Mount Kaufmann; and about 22 miles from the start brought us to the left bank of the Kizil-su opposite to the point where the Jintik valley debouches from the Alai.

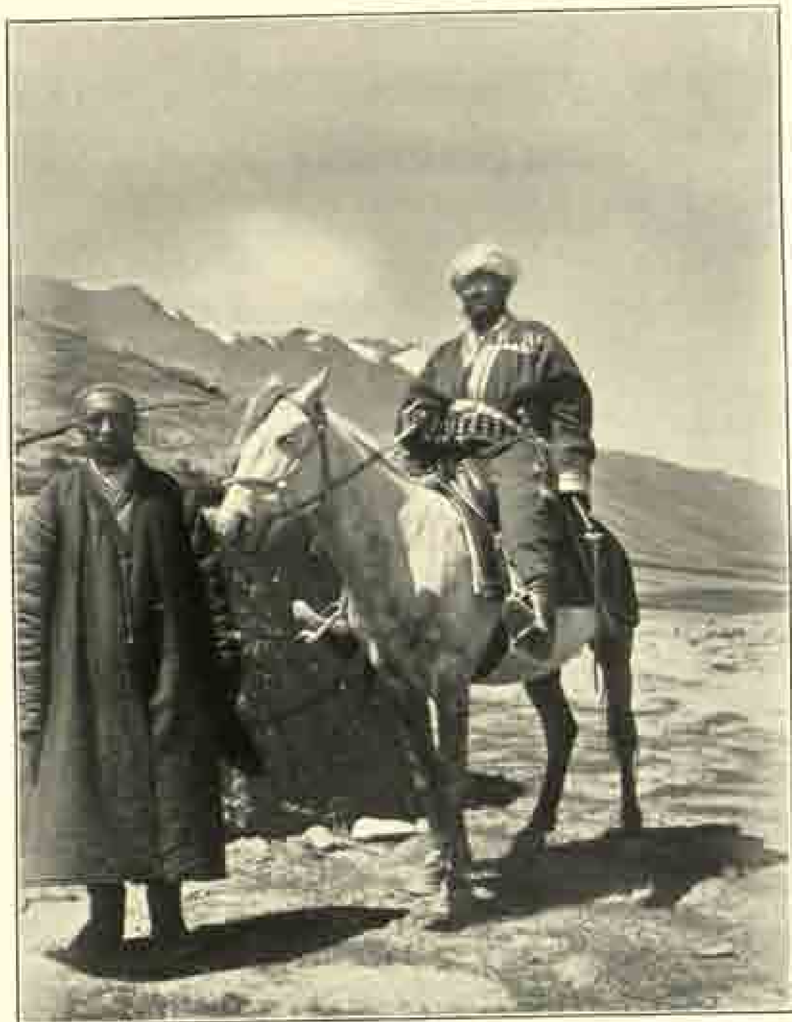
Absence of Kirghiz camps.

The wide belt in which the river flows with a number of interlacing branches offered abundant grazing, as did the grassy plateaus that we crossed before and after. Yet neither that day nor on the following, which brought us to Daraut-kurghān, after a total march of some 70 miles from Pōr-döbe, did we meet any Kirghiz camps. Local information explained this by the fact that both the true nomads of Kirghiz stock who move up with their large flocks from Farghāna for the summer, and their semi-nomadic congeners living lower down in the valley, prefer to visit the high side valleys, better watered by the melting snow and ice of the great flanking ranges, during the warmest months, and to graze the wide trough of the main valley later. At the small shrine of Sakeyār Mazār we struck the main road of the valley, which throughout keeps to the foot of the spurs running down from the range on the north. The reason, no doubt, lies in the need of avoiding the marshy ground near the river, which would be a cause of serious trouble in the spring. Following this well-marked track till long after nightfall we reached the debouchure of the Yamān-karchin

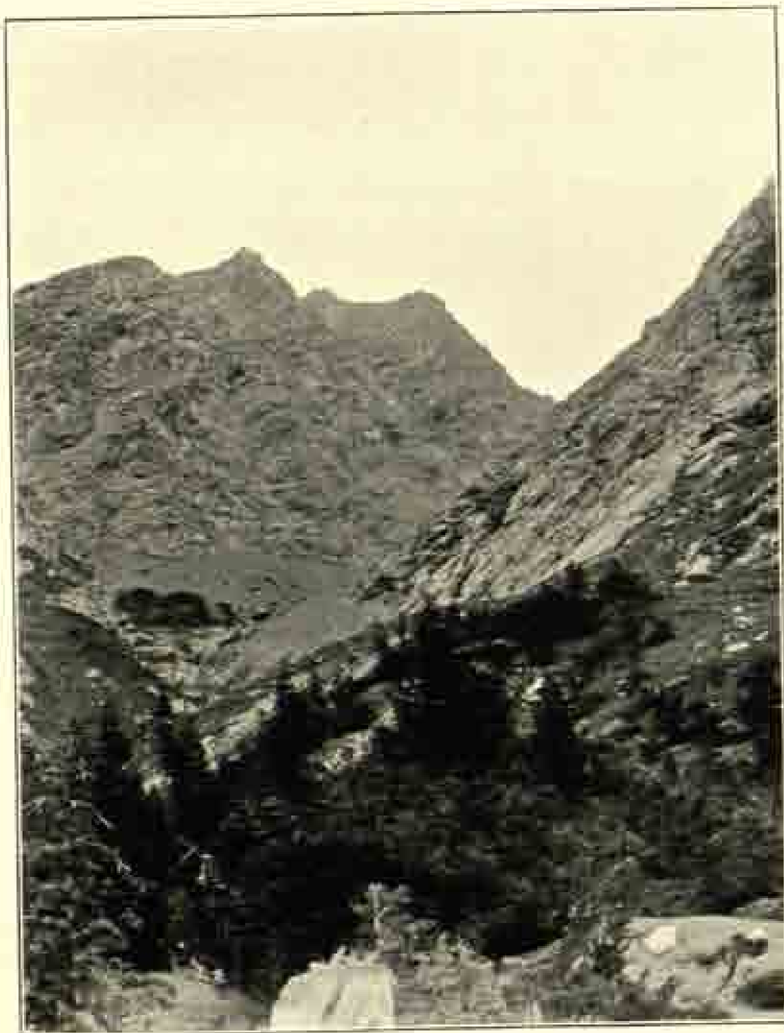
[2] For a lucid description of the Alai valley, gathered from Russian accounts, see Geiger, *Pamir-Gebiete*, pp. 75 sqq.; also Schultz, *Forschungen im Pamir*, pp. 40 sqq., with references to other modern accounts.



355. CH'IANG SSŬ-YEH BIDDING FAREWELL.



356. KOKAN BĒG, HEADMAN OF KIRGHIZ ABOUT GREAT KARA-KUL.



357. VALLEY ABOVE BOSTĀN-ARCHE.



358. VIEW UP SĒL-DARA VALLEY BELOW EASTERN HEIGHTS OF SĒL-TĀGH, FROM ABOVE ALTUN-MAZĀR.



**359.** PANORAMIC VIEW OF TRANS-ALAI RANGE FROM PÖR-DÖBE.



**360.** SNOWY RANGE DIVIDING GREAT PĀMĪR FROM WAKHĀN, SEEN FROM ABOVE WESTERN END OF LAKE VICTORIA.
(Arrow marks approximate position of Sāre [illegible] and pass leading above it to Sarhad (see p. [illegible]))



**361.** VIEW FROM KHUSH-KULAR SADDLE ACROSS KARA-TEGIN TOWARDS [illegible] ABOVE SURKH-AB AND MUK-SU VALLEYS.
([illegible] marks portion of [illegible] high range)

stream at an elevation of about 9,000 feet, where Kirghiz grazing higher up had pitched felt tents for our reception. Fig. 382 shows the Trans-Alai range as seen from here next morning across the wide valley.

Old and new cultivation.

We had scarcely started from this camping-place, when I noticed signs of old cultivation and soon came upon oat fields extending over terraced bays between the foot spurs. Patches of cultivation were met with again and again in similar sheltered positions, as well as walled enclosures, serving as shelters during the winter for felt tents and flocks. Beyond the scrub-covered 'Sai' of Kawuk the road keeps close to rocky ridges until, at the mouth of the Kizil-eshma Jilga, we found mud-built huts scattered among fields and marking permanent habitations. Here was also to be seen the ruin of a walled rectangular enclosure measuring about 120 yards by 100, known as the 'old Kurghān', and about a furlong to the NW. of it a small circular mound which showed signs of having been recently dug into. Some tombs and half-destroyed 'Gumbaz' not far off to the west were declared to be old beyond Kirghiz recollection.

Approach to Daraut-kurghān.

We had marched about 24 miles when the route passed among numerous mounds scattered over the wide partially cultivated plain above the right bank of the river. These mounds, of varying size up to 20 yards or more in diameter, were manifestly the remains of structures of unhewn stone which had suffered complete decay. Their character and position suggested that this site had once been occupied by a settlement more important than the scattered Kirghiz huts met with farther up. From here the terraced cultivation and scattered rubble-built homesteads of Daraut-kurghān came into view, and after proceeding another three miles we reached its old fort and modern Russian 'Picket'. These guard the entrance to the picturesque defile leading from the Alai valley to the Tengiz-bai pass, over which lies a direct and much-frequented route to Margilān and the rest of Farghāna.

The Alai valley as a natural highway.

The reasons that suggest the vicinity of Daraut-kurghān as a very likely location for the famous 'Stone Tower' of the ancient silk trade route will best be considered in connexion with our remarks on Ptolemy's notice of the latter. Before this, however, a brief synopsis may be useful of those physical features which make the Alai valley particularly suited to serve as a natural highway from the Middle Oxus to the Tārīm basin. The Alai valley stretches unbroken by any defile for a distance of close on 90 miles from the Taun-murun saddle above Irkesh-tam to near Kara-muk below Daraut-kurghān. From the point where it is crossed by the road between Pōr-döbe and the Taldik pass to below Daraut-kurghān the width of its floor or 'thalweg' is nowhere less than six miles and in places as much as eleven or twelve. In general physical character it may well be reckoned as a Pāmīr.[3] Yet climatic conditions, determined partly by lesser altitude and partly by geographical position, introduce an important difference. On the one hand the average height of the Alai valley is considerably lower than that of the recognized Pāmīrs, ascending from about 8,000 feet at Daraut-kurghān to not more than 11,200 feet at the Taun-murun saddle itself. On the other hand precipitation, mainly in the form of snow, is far greater in the Alai valley than on the Pāmīrs, of which extreme aridity is a striking feature.[4] The result is that the Alai valley has a steppe vegetation far more ample than that of the Pāmīrs. At the same time it does not lend itself to grazing all the year round as do the high valleys of the Pāmīrs; for the snow from November till the early part of May lies in the upper portion of the Alai valley deep enough to prevent herds and flocks from finding nourishment.

This accounts for two interesting facts. While the upper portion of the valley is occupied by the truly nomadic Kara-Kirghiz coming up from the plains of Farghāna only for some four months

[3] Cf. Rickmers, *Duab of Turkestan*, p. 378.

[4] Cf. *ibid.*, p. 494.

Semi-nomadic Kirghiz in lower Alai valley.

in the year, the climatic conditions in the lower portion have provided it with a permanent population leading a life half settled, half nomadic. The cultivation found from an elevation of about 9,000 feet downwards is carried on by Kirghiz, who graze their flocks and herds in the higher side valleys during the summer and after descending to the main valley in the autumn keep them during the winter months on fodder cut and stored for this purpose.[5] Even during those months some grazing is made possible by violent winds that blow through the main valley and help to clear the steeper slopes of snow. Up to Yamān-karchin oats will ripen, and from Daraut-kurghān downwards crops of wheat also are reaped, and that for the most part without irrigation.

Facilities of traffic along Alai valley.

The conditions here briefly indicated must obviously have had their bearing upon the use of the Alai valley as a line of traffic. The abundance of grazing was bound to be appreciated by caravans, particularly by those coming from the arid valleys on the Kāshgar side. Quite as important is the fact that places permanently occupied, and hence capable of offering shelter and some local supplies, could be found on either side up to an elevation of about 9,000 feet; for some cultivation exists not only at Irkesh-tam, but also above it at a point known as Nōraning-sōwa on the route to Taun-murun. Thus the distance on the Alai route over which habitations were not to be found is reduced to less than 70 miles or three easy marches.[6] The route remains open for laden animals, including camels, during eight or nine months of the year. Even in the months of December to February, when it is reported to be closed by deep snow, it would probably be made practicable in the same way as the route from Irkesh-tam across the Terek pass (12,700 feet above sea-level), provided there were sufficient traffic to tread a track through the snow and keep it clear. Such traffic between Kāshgar and the Oxus region as was once served by the route through Kara-tegīn and the Alai valley now no longer exists. What trade comes up Kara-tegīn at present from the side of the Oxus proceeds towards Margilān or Andijān in Farghāna, while the trade from Kāshgar touches the eastern end of the Alai only during April and May, when the melting snow renders the Terek pass towards Farghāna and its railway impracticable.

Importance of route for trade.

But during the centuries before and after the beginning of the Christian era, when Baktra was a chief emporium for the great silk trade passing from China to Persia and the Mediterranean, all geographical factors combined to direct this trade to the route which leads from Kāshgar to the Alai valley and thence down the Kizil-su or Surkh-āb towards the Oxus. Nature has favoured the use of this route, since it crosses the watershed between the Tārīm basin and the Oxus where it is lowest. Moreover, it has, in Kara-tegīn, a continuation singularly free from those physical difficulties which preclude the valleys draining the Pāmīrs farther south from serving as arteries of trade. According to the information received at Daraut-kurghān and subsequently on my way through Kara-tegīn, the route leading mainly along or near the right bank of the Kizil-su is practicable for laden camels and horses at all seasons right through as far as Āb-i-garm. From there routes equally easy lead through the Hissār hills to the Oxus north of Balkh.

Route of ancient silk trade.

The topographical facts here noted fully support the conclusion, first indicated by Sir Henry Yule, that the route from Baktra to the capital of the Sēres which Marinus had recorded from information secured through the agents of 'Maēs, a Macedonian also called Titianus, who was a merchant by hereditary profession', led up through Kara-tegīn and the Alai valley. The passages of Ptolemy[7] to which we owe the preservation of this very interesting classical record bearing on the silk trade from China during the first century of our era have been the subject of much learned

[5] Exactly corresponding conditions among the Kirghiz of Kara-tegīn are lucidly described by Rickmers, *loc. cit.*, pp. 379 sq.

[6] I have had occasion to refer to the importance of a corresponding consideration in the case of the routes leading from the uppermost Oxus valley to Sarīkol; cf. *Ancient Khotan*, i. pp. 32 sq.

[7] Cf. *Geographia*, I. xi. 7; xii. 8 sq.

discussion. There is no need here to review this nor to examine certain points which in the account of the route beyond Baktra, as excerpted by Ptolemy, still remain obscure and may remain so for ever, owing, perhaps, to the loss of the original record, whether of Maēs or Marinus. We are spared this obligation, since the certain identification of the 'mountain country of the Kōmēdoi', which the essential passage of Ptolemy mentions on the line of the route, makes it quite certain that the route led through Kara-tegīn. I have already had occasion to show 'how Sir Henry Yule, by a chain of sound critical reasoning, had been led to Kara-tegīn, as the probable position of the Kōmēdoi'. This location is confirmed on the one hand by finding the same ancient name in the form *Chü-mi-t'o* applied by Hsüan-tsang to a territory in a position exactly corresponding to Kara-tegīn, and on the other by the application to the same of the name *Kumēdh* by early Arab geographers.[8]

Ptolemy on route of Maēs' agents.

These references to Kara-tegīn and others found in the Chinese historical Annals will be duly noticed below. Here, however, we must consider two points mentioned in Ptolemy's account of the route followed by the agents of Maēs, which certainly have to be looked for beyond Kara-tegīn. From Antiochia Margiana, i. e. Merv, he tells us, the route proceeds 'in an eastward direction to Baktra, whence it turns towards the north in ascending the mountains of the Kōmēdoi, and then in passing through these mountains it pursues a southern course as far as the ravine that opens into the plain country. For the northern parts of the mountain region and those farthest to the west where the ascent begins are placed by him under the parallel of Byzantium, and those in the south and the east under the parallel of the Hellespont. For this reason he says that this route makes a detour of equal length in opposite directions, though in advancing to the east it bends towards the south, and thereafter probably runs up towards the north for 50 schoini till it reaches the Stone Tower. For to quote his own words, "when the traveller has ascended the ravine he arrives at the Stone Tower, after which the mountains that trend to the east unite with Imaos, the range that runs to the north from Palimbothra".'[9]

Direction of route from Baktra.

I cannot attempt definitely to settle the doubts occasioned by the rather involved references to the changing direction of the route. But it will be useful to point out certain plain topographical facts which must clearly be kept in view. The easiest and most direct line by which the route leading up Kara-tegīn to the Alai valley could be gained from Balkh lies, after crossing the Oxus near Termez, up the wide valley of the Surkhan river past Deh-nau and Rēgar to Kara-tāgh in the Hissār tract, and then past Faizābād to the Kizil-su (Surkh-āb) below Āb-i-garm.[9a] This line leads as far as Kara-tāgh to the NNE. and thence as far as Faizābād south of east; from there onwards the route up Kara-tegīn follows a general north-easterly bearing. The slightly southerly trend of this route from Kara-tāgh to Faizābād over a distance of about 60 miles, when combined with the rough total of 160 miles to be reckoned over the SSW.–NNE. portion of the route from Balkh to Kara-tāgh, would certainly not constitute 'a detour of equal length in opposite directions'. But I know of no route on which a closer approximation between the bearings indicated and the geographical facts could possibly be made out.

Route up Kizil-su (Surkh-āb).

In the 'ravine that opens into the plain country', I believe we may quite safely recognize the comparatively narrow main valley of Kara-tegīn which between Kara-muk at the upper end

[8] Cf. below, ii. p. 893, and *Ancient Khotan*, i. pp. 54 sq., with references to Yule, *Cathay*[2], i. pp. 190 sq.; *J. R. A. S.*, 1873, pp. 97 sq.; Richthofen, *China*, i. p. 497, note. The connexion of the Kōmēdoi with Chü-mi-t'o was first suggested by Cunningham, *J. A. S. B.*, 1848, xvii, pt. II, p. 15.

For a detailed discussion of the classical notice, see also Tomaschek, *Sogdiana*, pp. 77 sqq., and for Kumēdh also Marquart, *Ērānšahr*, p. 233.

[9] Cf. Ptolemy, *Geogr.* I. xii. 7–9, as translated in McCrindle, *Ancient India as described by Ptolemy*, pp. 18 sq.

[9a] Since the above was written, I was glad to notice that this line is also marked as the one meant by Marinus in the instructive sketch-map illustrating Dr. Herrmann's *Seidenstrassen zwischen China und Syrien*, I.

and the gorges below Āb-i-garm forms more than one defile by the river. When following myself the route above indicated in the opposite direction I certainly had the impression that ' the plain country ' was entered on reaching the downs above Faizābād from Āb-i-garm. The statement reproduced in Marinus' own words, ' when the traveller has ascended the ravine he arrives at the Stone Tower (λίθινος πύργος) ', clearly takes us to the vicinity of Daraut-kurghān, where the defiles of the Kizil-su are finally left behind and the wide Alai trough is entered. We have distinct confirmation of this in the mention immediately following of ' the mountains that trend to the east [and] unite with Imaos, the range that runs up to the north from Palimbothra ' (the present Patna). It has been recognized long ago that by Imaos is meant the great meridional range of Muz-tāgh-atā and its northern continuation, buttressing the Pāmīr region on the east. It thus becomes obvious that by ' the mountains that trend to the east and unite with Imaos ' the Trans-Alai chain is quite correctly described.

Traders' station on Mt. Imaos.

There is a second point mentioned in Ptolemy's account of the trade route to the Seres as extracted from Marinus which concerns us here. It is ' the station (ὁρμητήριον) at Mount Imaos, whence traders start on their journey to Sēra '. It is mentioned in Book VI. xiii. 1, where the eastern limits of the territory of the nomadic Sakai, including also the mountain district of the Kōmēdoi and the Stone Tower, are described. From the previously quoted statement of Marinus it is certain that this station for the traders to the Sēres lay due east of the Stone Tower. This and the distinct statement as to the station being situated at Mount Imaos make it appear very probable that the ὁρμητήριον must, as rightly pointed out by Baron Richthofen,[10] be looked for close to where the route coming from Kara-tegin, the valley of the Kōmēdoi, crossed the watershed towards the Tārīm basin. This consideration has already led me to express my concurrence in the belief that the vicinity of Irkesh-tam, the present Russian frontier and customs station, about 16 miles by road from the watershed at Taun-murun, would have been a likely position for the ancient traders' station.[11] Such a location, as justly observed by Baron Richthofen, finds support in the fact that the route from the Alai valley is joined at Irkesh-tam by another, much frequented in modern times and probably in antiquity also, which leads from Farghāna over the Terek pass to Kāshgar. If at the period to which the information recorded by Maës refers (probably the last quarter of the first century A. D.) direct Chinese control over the ' western regions ' did not extend beyond the watershed between the Tārīm basin and the Oxus, the vicinity of Irkesh-tam would have offered a very suitable position for one of those frontier control stations, such as Chinese administration has always been accustomed to maintain on the borders of the Empire proper; for the elevation, about 8,550 feet, permits of some cultivation, and facilities for irrigation are assured.[12]

Daraut-kurghān and Chat.

I was obliged to make a short halt at Daraut-kurghān in order to arrange for a guide, for transport, and for supplies, and to do some necessary writing. I took advantage of it to make a start with the collection of anthropometrical materials from among the local Kirghiz and for an excursion down the right bank of the river. The track, artificially widened in places, which for about a mile leads along precipitous cliffs above the river, was said to be old and to have always been practicable for camels. Where the Kōk-su stream debouches about 3 miles down I found a large well-cultivated area with groves of trees belonging to the village of Chat. Outside it low mounds, forming an irregular oblong of about 300 yards by 250, mark an old circumvallation said to have been occupied down to the régime of the Kōkand chiefs. Owing to its ample space and sheltered position, Chat seemed to be a place better suited for a large roadside station than

[10] See Richthofen, *China*, i. p. 500.

[11] Cf. *Ancient Khotan*, i. pp. 54 sq.

[12] The ὁρμητήριον discussed above has been placed by others at Kāshgar, but, as far as I can see, without any convincing evidence for such a location.



362. SĒL-TĀGH OR MUZ-TĀGH RANGE, SEEN FROM TARS-AGAR PASS.



363. CENTRAL PORTION OF SĒL-TĀGH RANGE, SEEN FROM MAZĀR-BĒL-BĀSHI ABOVE ALTUN-MAZĀR.



364. VIEW UP BOSTĀN-ARCHE VALLEY TOWARDS CHAKRAGHIL PORTION OF MERIDIONAL RANGE.

Afrāz-gul Khān in foreground.

Daraut-kurghān, with its confined terraces on which, owing to exposure, trees will not readily grow. But at neither place did I learn of remains definitely indicating an early site. The selection of Daraut-kurghān for the fort from which it takes its name and for the modern customs post is accounted for by the facility it offers for watching the route to Margilān as well as that up the Alai valley.

## Section III.—ALONG THE WESTERN RIM OF THE PĀMĪRS

Start south from Daraut-kurghān.

On August 2nd I started south, in order to strike across the succession of high snowy ranges which separate the head-waters of the Muk-su and those of the rivers flowing through Rōshān and Shughnān from the uppermost main feeders of the Oxus. It was the only route, other than the well-known one passing the Kizil-art and Great Kara-kul, by which I could cross the Russian Pāmīrs and their western buttresses to Wakhān, and for this reason I chose it. It proved difficult to follow, even with such hardy animals as Colonel Jagello's orders enabled me to secure from the rare Kirghiz camps that we encountered. But there was abundant reward in interesting geographical observations and in splendid views over a high mountain region which had hitherto been but little explored.

Tars-agar saddle and Sēl-tāgh.

The first day's march led up the stream coming from the Tars-agar saddle. In the fairly open valley we met with fields of oats, cultivated mostly without irrigation, up to Kūt-mazār, at an elevation of about 9,000 feet. On the saddle of Tars-agar, girt by old moraines (about 11,500 feet), where we found a small Kirghiz camp and halted, a truly impressive view was obtained of the great ice-clad range due south vaguely known as Sēl-tāgh or Muz-tāgh (Fig. 362).[1] Even more imposing was the panorama presented by its huge glacier-furrowed wall, of which Fig. 363 shows only a portion, as it rose before me with magnificent abruptness; it overhung wide torrent beds in the deep-cut valley of the Muk-su, to which we descended next morning. This grand ice-clad range, forming as it were a mighty north-western buttress of the Pāmīrs, still awaits exact survey. But there seemed to me little doubt that its boldly serrated crest line rises well above 20,000 feet and that individual ice peaks on it reach heights perhaps as great as that of Mount Kaufmann.[2]

Muk-su and Kayindi valley.

On descending into the Muk-su valley we found luxuriant fields and meadows surrounding the two dozen odd Kirghiz homesteads of Āltun-mazār, at an elevation of over 9,100 feet. There were plenty of trees to be seen about them. The snowfall of the winter was stated to be distinctly less than in the Alai valley. The Muk-su valley lower down contracts into gorges, quite impracticable as a route during the greater part of the year, and even during the winter very difficult. Our direct route past the Sēl-tāgh would have led up the valley (Fig. 358) by which the Zulam-art and Takhta-koram passes, giving access to the Kara-kul and Tanimaz river drainage areas, respectively, are approached. But the floods fed by the huge Sēl-dara or Fedchenko Glacier completely close this route from springtime till the late autumn. So we were obliged first to cross the several large branches of the Sawak-sai, which drains the southern slopes of Mount Kaufmann and the Trans-Alai farther west, and then to ascend the lower slopes of the spur which divides it from the Kayindi valley. Progress to the head of this valley next day was very difficult, the track winding for the most part through narrow ravines, blocked in places by ancient moraines and

[1] For a synopsis of Russian explorers' notices of this massif, cf. Geiger, *Pamir-Gebiete*, p. 135; *ibid.*, p. 111, note 2 for greatly divergent height estimates of the Tars-agar saddle.

[2] For earlier approximate Russian estimates of height, varying for the central peak from about 20,000 (?) to close on 25,000 feet, cf. Geiger, *loc. cit.*, p. 135. It must be hoped that the systematic triangulation which the Topographical Service of Russian Turkestān had started on the Pāmīrs, and which in 1915 was said to be steadily continuing in spite of the war, had fixed the true elevations of these worthy rivals on the Russian side of Muz-tāgh-atā and the Kongur peaks.

detritus shoots from former glacier snouts. The small grassy spots between these were marked by a striking abundance of fine alpine vegetation. Here, as elsewhere in the high mountains west of the Pāmīrs, there was plentiful evidence that glaciation had considerably receded during recent times.

Across Kayindi pass to Chakur-jilga.

From our camp, pitched at an elevation of close on 14,000 feet, the Kayindi pass, 16,200 feet by the Russian map, was crossed without much difficulty on August 5th. The ascent lay over old moraines and finally for about a mile on a broad gently sloping glacier, descending from the west. The top of the pass was almost clear of snow. After we had descended to the narrow gorge through which the stream of the Kumush-jilga passes, a very steep track led up to a plateau gently sloping south-eastwards. From the end of it an extensive panoramic view opened over the wide valleys that descend from the south and east to the head of the Sēl-dara, and towards the west where the combined waters of the latter pass in a gorge below the flank of the Sēl-tāgh. It was interesting to observe that the long ridge overlooking the main valley to the south showed six distinct old riverine terraces to a height of about 400 feet above the present bed. The Pāmīr-like look of the wide landscape, combined with the scanty vegetation, formed a striking contrast to the Muk-su and Kayindi valleys. Our farther march led up the main valley to the south-east, past the streams which descend to it from the glacier-crowned watershed towards the Tanimaz river on the south. Camp was pitched after a march of some 33 miles at the debouchure of the Chakur-jilga. The day's halt here which our Kirghiz transport needed was utilized by me for a visit to the fine glacier filling the head of the Chakur-jilga (Fig. 367). Its snout, which is quite half a mile across, was reached at an elevation of about 14,600 feet. The range to the south, though crowned by heavy névé beds and firm ice, was said by our intelligent Kirghiz guide to have been crossed in the 'old Kirghiz days' at more than one point by tracks used for raids into the upper part of Rōshān.

Crossing of Takhta-koram.

On August 7th we moved up the main valley for about 6 miles and turned south into the Takhta-koram-jilga; the gently sloping bottom of this is filled with bare rock debris, whence its name. After passing four small tarns of intense green, we reached the Takhta-koram pass without trouble at an elevation of about 15,100 feet. Immediately to the west a small glacier descends close to it from a bold snow peak. The very steep descent at first led over a bare rock slope and then over old moraines into a wide-bottomed valley to the south, where at an elevation of about 13,000 feet we found a delightful patch of meadow land and camped.

Visit to Kirghiz at Kara-chim.

The necessity of securing fresh transport and a fresh guide for our farther move obliged me next day to seek contact with Kōkan Bēg, the headman of the Kirghiz who graze about the Great Kara-kul lake eastwards. For this purpose we had to descend first into the Kōk-yār valley, which drains westwards into the Tanimaz or Kūdara river. Where the valley from the Takhta-koram pass debouches into it we passed huge terminal moraines of the glacier which once had filled the former. A couple of miles farther we turned off north into the side valley of Shōr-āle and ascending a steep rocky ravine lined with cliffs of red sandstone reached the Kizil-bēl saddle, about 14,700 feet, which takes its name from them. On our descent down the wide gently sloping valley I was met by Kōkan Bēg, a fine-looking man (Fig. 356), and conducted by him to a small summer camp of some of his men at Kara-chim at an elevation of some 13,700 feet.

Route chosen to Alichur Pāmīr.

From that capable headman I was able to secure useful advice with regard to our future route. From him I first learned of the great lake which since a mighty earthquake four years before had formed in the Murghāb river valley. Covering what had previously been the Sārēz Pāmīr, this lake effectively blocked the straight route I had intended to follow towards the Alichur Pāmīr across the Kara-bulak and Marjanai passes. Not wishing to follow the well-known road past Pamirski Post, I decided to move down to Saunāb, at the head of the Rōshān valley, and thence to seek a passage past the great barrage which had created that new lake, towards the lower end



365. KIRGHIZ ANTHROPOMETRICALLY EXAMINED AT KARA-CHIM.



366. ROSHĀNĪ HEADMEN AT SAUNĀB.



367. GLACIER AT HEAD OF CHAKUR JILGA.



368. VIEW DOWN TANIMAZ OR KŪDARA VALLEY, FROM BELOW KIZIL-TOKAI.

of the Alichur Pāmīr. My day's halt at Kara-chim was utilized also for collecting anthropological measurements from the Kirghiz there encamped (Fig. 365). These, together with all the other anthropometrical materials secured on my journey north of the Oxus, have been fully discussed by Mr. T. C. Joyce in Appendix *C*.[3]

Descent to Tanimaz river.

On August 10th we retraced our way across the Kizil-dawān to the Kōk-yār valley, and followed this down to where it joins the great valley of the Tanimaz or Kūdara river close to the latter's sharp southward bend. The great glaciers on the Sēl-tāgh which feed this important river had been sighted far away to the west on our march higher up. The route descended by the left bank and brought us to thickets of willows and birch-trees at Kizil-tokai, about 10,500 feet above the sea, where we halted. The feeling that we had left the Pāmīrs behind was borne out when next morning, after advancing a couple of miles, we passed fine fields of barley cultivated by Tājiks of Rōshān; driven from the Murghāb or Bartang valley by the flooding of Sērēz they had reclaimed old cultivation at this spot. As we descended farther by the left bank, mostly along large detritus slopes (Fig. 368), we repeatedly encountered patches of cultivation amidst luxuriant vegetation watered from small beds of snow.

Earthquake effects in Tanimaz valley.

Above the junction of the Tanimaz with the river coming from the Kōk-ui-bēl we passed huge shoots of debris and then crossed to the right bank. There we soon came upon marks of the wide-spread destruction wrought by the great earthquake of 1911. The wide stretch of level ground known as Palēz and formerly cultivated had been abandoned; for the fall of the hill-side above had blocked the canal which carried water to it. Within a mile and a half from the river crossing we found the valley floor completely smothered under enormous masses of rock debris (Fig. 377), which that cataclysm had thrown down from the slopes of the spur flanking the valley on the right. They rose in wild confusion to 200 feet or more over what had been the plain of Palēz, and had been propelled in places right across the valley to the opposite slope. The river had been blocked for months by this huge barrage and progress over or past it was very difficult for about two miles (Fig. 369). Lower down, the Kūdara valley had suffered less from the effects of the earthquake.

March to Tanimaz–Bartang junction.

It thus became possible on August 12th to push on to the Bartang valley after a night spent at the small Tājik hamlet of Pasōr, ensconced among luxuriant white poplars and willows at an elevation of about 9,700 feet. The track, difficult in places for laden animals, kept close to the river wherever the steep banks overhanging it left room, or else crossed high terraces. On one of these the small village of Rukhj was passed; its green fields presented a refreshing contrast to the utterly bare slopes around. Farther on, the route led down the boulder-strewn bed of the river, where frowning cliffs overlook it. Here, at a point appropriately known as *Darband* (Fig. 390), a large rock once carried a watch-tower intended to defend the peaceful Iranian settlements of Rōshān from Kirghiz raids. We then threaded the narrow mouth of the ravine, through which

[3] With reference to my note on the name 'Sarīkol', *Ancient Khotan*, i. p. 23, n. 3, I may record here that all Kirghiz examined by me at Kara-chim and elsewhere on the Pāmīrs agreed in applying the term Sarikol in a general way to the whole Pāmīr region from the Trans-Alai in the north to the range overlooking the uppermost Āb-i-Panja in the south, and from the Muz-tāgh-atā range to the head of the valleys of Darwāz, Rōshān, and Shughnān.

The prevailing 'popular etymology' seeks the Persian *sar*, 'head', in the first part of the name without accounting for the second. That the latter, properly pronounced and spelt, contains the Turkī word *qol*, 'valley', and the first the Turkī *sarigh* or *sarik*, 'green', appears to me all the more likely since I heard the local name *Sarik-tāsh*, on the Alai, regularly pronounced as *Sarī-tāsh* through assimilation of the consonants and subsequent complementary lengthening. The term *qol* or *qōl* occurs frequently in local designations (*Öch-kol* on the Alichur Pāmīr, *Tār-kol* south of Zailik in the K'un-lun, &c.).

The comprehensive use of the name *Sarikol*, 'the green valley', for all Kirghiz grazing grounds on the Pāmīrs can easily be accounted for. Its restriction to the high valleys east of the Oxus–Tārīm watershed, from the Tāghdum-bāsh Pāmīr to Tagharma, is a point calling for examination elsewhere.

the great Murghāb branch of the Oxus or Bartang used to pour its waters before the great earthquake barred its way. But for the Tanimaz the bed in the deep gorge now turning to the northwest would have been practically empty. Finally a climb over steep rocky ledges brought us to the picturesque rock-bound plateau which bears the village and fields of Saunāb, known as Tāsh-kurghān to the Kirghiz (Fig. 384), at an elevation of about 9,000 feet.

Halt at Saunāb.

Information sent ahead by Kōkan Bēg had assured the necessary help from the assembled headmen of Saunāb and the nearest Rōshān villages for the difficult marches before us. Hence a day's halt sufficed for the transport arrangements, which had to include an adequate number of load-carrying hillmen. But for the distance to be traversed and the necessity of completing the alpine portion of the route before the advance of autumn, I should have gladly extended that halt, so varied were the interests presented by this first Iranian-speaking settlement of any size that I had reached in the region of the Oxus. Its alpine isolation at the head of the difficult Rōshān valley seemed to have preserved, in these fine-looking hill Tājiks (Fig. 366), the racial type of *Homo Alpinus* in its purity, besides much of interest in their old-world customs and domestic architecture. As it was, I had to rest content with securing anthropometrical data and with visiting the small fort crowded with roughly built dwellings (Fig. 387). Until the advent of Russian rule it had sheltered all the families who now live safely outside near their fields. In the arrangement of the dark, smoke-begrimed 'Aiwāns', as well as in the rough decorative wood-carving found here and there, I noticed unmistakable affinity to what I had observed in dwellings of Mastūj and Yāsīn. In material civilization, as in racial type, the Hindukush evidently did not interpose an insurmountable barrier. Recollections of Afghān oppression were still fresh, and some very old men whom I measured remembered the terror of Kirghiz raids as well as visits of Chinese officials.

Ascent through Bartang gorges.

On August 14th we left picturesque Saunāb and, after crossing the rocky spur which confines its verdant plateau on the west, dropped down to the river gorge opposite the hamlet of Nusur, some 400 feet below (Fig. 370). The passage of the river, here some 150 yards wide, was effected on rafts of goatskins, guided by three men swimming behind (Fig. 389). From Nusur we moved over rocky foot-spurs and small plateaus high above the river to the hamlet of Barchidīw, now the last place of cultivation in the Bartang valley. Resuming our march next morning, we were able to follow the old track for about four miles, as it wound along terraces above what had been the bed of the Bartang, now reduced to a mere streamlet of beautifully limpid water. Farther up huge landslides attending the earthquake had in many places completely choked up the river passage and destroyed what tracks there ever existed along or above it. The big river, once rivalling in volume the Āb-i-Panja and claimed as the main feeder of the Oxus, had completely ceased to flow. The mouth of a small side valley to the north known as Raut was pointed out as a spot among several where homesteads of Rōshān graziers had been overwhelmed by masses of rock debris. Our progress was along vast debris shoots, varied with difficult climbs up and down precipitous spurs. Again and again the lightly laden hill ponies, all hardy and nimble climbers, had to be relieved of their loads and our modest baggage carried by the men. Strings of deep alpine tarns, with colours of exquisite beauty (Fig. 371), had here and there replaced the river and contributed to our difficulties. In places the drainage from the newly formed great lake was seen to come to light in large springs, soon smothered again by detritus. In others detritus was moving on the slopes like mud and offered no foothold. At one point what according to our Saunāb guides had been a high spur on the north side had been torn away by the earthquake and thrown in confused masses of rock and loose debris against the southern side of the valley. A trying climb over these to a height of about 10,600 feet brought us at last to a small scrub-covered terrace on the original hill-side where it was found possible to camp.



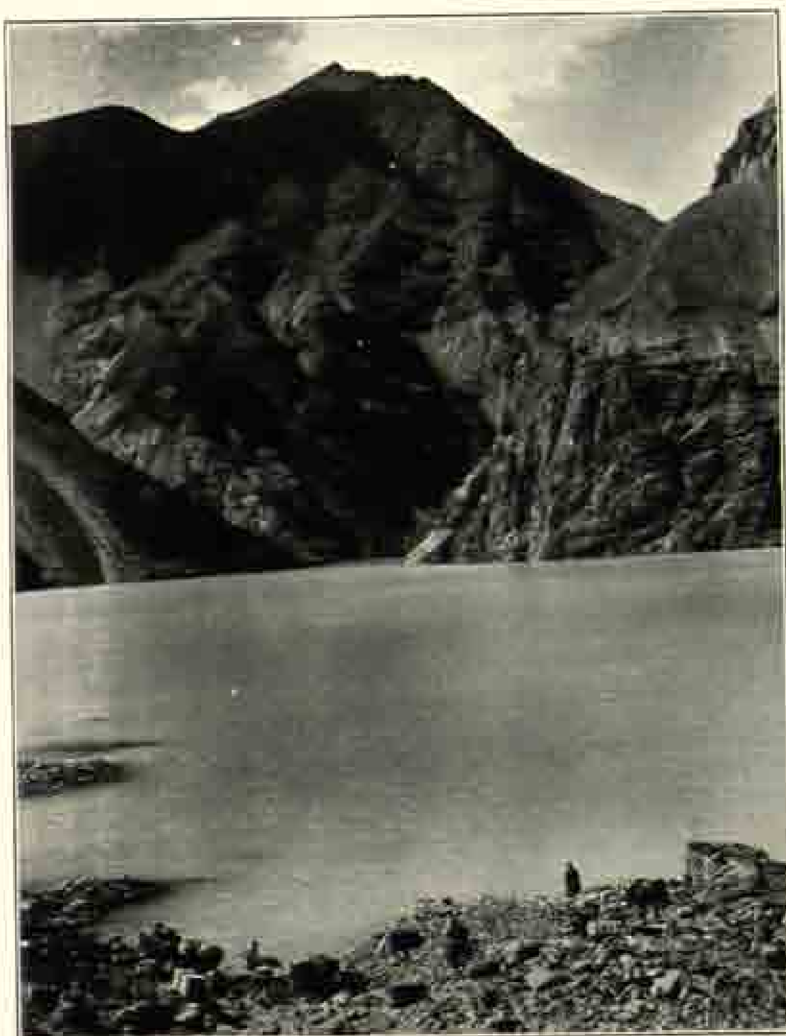
369. CROSSING ROCK DEBRIS THROWN DOWN BY EARTHQUAKE NEAR PALĒZ, TANIMAZ VALLEY.



370. VIEW DOWN BARTANG GORGE NEAR NUSUR, RŌSHAN.



371. GORGE OF BARTANG RIVER, ABOVE RAUT, BLOCKED BY EARTHQUAKE.
Newly formed lake in foreground; former river-bed buried under rock debris.



372. SHEDAU LAKE FORMED BY BARRAGE THROWN DOWN BY SĀRĒZ EARTHQUAKE.



**373.** BARRAGE THROWN ACROSS BARTANG VALLEY BY EARTHQUAKE, WITH WESTERN END OF NEWLY FORMED SĀRĒZ LAKE.

View from about 13,000 feet height on Marjanai spur, looking to north-west. Clouds of dust raised by rock movement on higher slopes.



**374.** VIEW TO NORTH-EAST ACROSS SĀRĒZ LAKE FROM SLOPE ABOVE YERKH FIORD.



**375.** PASSAGE OF DEBRIS SCARPS ABOVE WESTERN SHORE OF YERKH FIORD.

Arrow points to man crossing by improvised track.



**376.** UPPER END OF YERKH FIORD, SEEN FROM SOUTH.

From here, on August 16th, we clambered up a thousand feet more over very steep rock slopes to the spur of Odiāz-kōtal (Fig. 386). On the north it was flanked by a high ridge of shattered rock which the landslide had carried across from the opposite side of the Bartang valley. On descending from this newly formed pass amidst masses of detritus, I first sighted the narrow fiord-like lake which had been formed in what was before the mouth of the Shedau valley by the same huge barrage as had blocked the Bartang river. A difficult scramble over rock debris scattered in wildest confusion brought us down to the northern end of the Shedau lake (Fig. 372). We had now to pick our way with much trouble along the southern foot of this enormous barrage over jumbled masses of rocks and detritus, until at last we gained the foot of the spur which divides what was the Shedau valley from that leading towards the Langar pass. It was on ascending this spur to the south-east that the full extent of the change wrought by that great cataclysm revealed itself. Descent to new Shedau lake.

The fall of a whole mountain, completely blocking the river, had since February 1911 converted the so-called 'Sārēz Pāmīr'[4] into a fine alpine lake (Fig. 374), which already in 1913 was over 17 miles long and had since been spreading up the valley.[5] Enormous masses of rock and detritus had been shaken down from the range on the north and had been pushed by the impetus of the landslips up the steep spur flanking the mouth of the Shedau valley. The gigantic dam thus formed seemed even then, four years after the great landslide, to rise more than 1,200 feet above the level of the new lake. Fig. 373 shows it as seen from about 1,500 feet above the lake. Stone avalanches were still descending from the scarred mountain side above the barrage and accounted for the clouds of dust which are seen in the photograph (Fig. 373) rising on the uppermost slopes of the mountain.[6] Fall of mountain blocking Bartang R.

At the very foot of the spur above mentioned, in a dismal mud-filled depression, I had the good fortune to find a small Russian party under Professor J. Preobrazhenski just arrived in camp from the side of the Alichur Pāmīr for a systematic survey of the great barrage. A detailed record of the results of this has since been published by him in the Russian Geological Committee's *Matériaux pour la géologie, &c.* (Fasc. 14, Petrograd, 1920). The Russian scientists had arrived by skin raft from the southern extension of the lake, which they had reached across the Langar pass. In the course of their very kindly welcome they expressed their belief that my intended passage with baggage along the precipitous slopes above that inlet would prove impracticable. As, however, the plucky Rōshānī headmen with us were quite prepared to make the attempt, the spur was ascended to a height of about 13,200 feet and camp pitched beyond near a small spring some 600 feet lower. Meeting with Professor Preobrazhenski.

When next morning a steep descent of some 2,000 feet had brought us down to the dazzling green waters of the Yerkh fiord (Fig. 376), we realized readily enough the difficulties of farther progress along the precipitous rock slopes thrown down by the earthquake and over dangerous debris shoots in many places still liable to move. Fortunately the men collected from the upper- Difficult passage above Yerkh fiord.

[4] Cf. regarding this misnomer, Curzon, *The Pamirs*, p. 20.

[5] I take this statement from a report on the great earthquake published by Captain Pultoff in the *Transactions* of the Geographical Society of Tashkend, 1913, which I had occasion to see on the spot in the hands of Professor Preobrazhenski and to which M. Obrucheff, the distinguished Russian geologist, refers in the *Zeitschrift der Gesellschaft für Erdkunde*, 1922, p. 47. The greatest depth of the lake was then estimated at 131 fathoms.

A description of the earthquake results as they presented themselves in December 1911, when the lake was still comparatively small, is given in Schultz, *Forschungen im Pamir*, pp. 158 sqq. [The figure of 150 m., p. 101, for the estimated height of the barrage, seems to be due to an oversight or misprint.]

[6] In a paper largely based on a report by Col. Spilko (*Comptes rendus de l'Académie des Sciences*, clx. pp. 810 sqq.), Prince B. Galitzin has expressed the belief that the Sārēz landslide was not the consequence but the cause of the earthquake of February 18th, 1911, which many distant seismological stations had registered. Evidence against this view has been set forth by Mr. R. D. Oldham, F.R.S., in *Quart. Journal Geolog. Soc.*, lxxix (1923), pp. 237 sqq.

Chinese inscription at *Sūme-tāsh.*

On a cliff known as Sūme-tāsh (Fig. 385), which overlooks the small delta formed by the stream of the Alichur Pāmīr where it enters the eastern extremity of the lake, rises a small ruined shrine. It formerly sheltered the stēlē commemorating the victory here gained in 1759 by the Chinese commander over the Khōjas of Kāshgar who were fleeing with their followers across the Pāmīrs towards Badakhshān.[9] The inscription had been removed to the Tashkend Museum, probably after Colonel Yonoff's Cossacks on June 22, 1892, had wiped out the small Afghān detachment holding a post not far off. But the massive granite base of the stēlē was still *in situ*, probably the most enduring historical relic on the Pāmīrs and a fit emblem of that Chinese power which during the last two thousand years had again and again made itself felt on the far-off 'Roof of the World'. After leaving our Sūme-tāsh camp on the morning of August 22nd, we passed, half a mile away to the south of the river, a curious triangular enclosure made of boulders and known as 'Khitai-kurghān'. Its longest side measured 25 yards. There was nothing by which to determine its origin.

Across Bāsh-gumbaz pass to Lake Victoria.

Two marches up the Alichur Pāmīr, first in the marshy riverine trough, then over a wide grass-covered steppe, brought us to Bāsh-gumbaz-aghzi, the chief summer camp of the Kirghiz grazing on this Pāmīr and at that time occupied by more than two dozen 'Ak-ois'. A day's halt there offered an opportunity for useful anthropometrical work on their dwellers (Fig. 439) and for securing supplies, most of which are brought to this place from the side of Shughnān. Thence I turned south to cross the 'Pāmīr chain' dividing the Alichur and Great Pāmīrs by the pass of Bāsh-gumbaz. The ascent to it through the valley of the same name (Fig. 379) was of interest in that it clearly showed the series of terminal moraines successively left behind by the large glacier which had once filled it. The pass, crossed on August 26th at an elevation of about 16,300 feet, was the highest encountered on our route, but was found clear of snow throughout and less difficult than previous accounts had suggested. The valley below it opened upon a wide peneplain overlooking the western extremity of Lake Victoria or Zōr-köl and the outlet from it of the Great Pāmīr branch of the Oxus. Here a grand panoramic view met the eye (Fig. 360), extending over the imposingly wide valley to the glacier-crowned range which divides it from uppermost Wakhān. For about six miles we skirted the foot of the range where it descends from the north to the Russian shore of the lake, and then near a large bay pitched camp for a day's halt.

Historical interest of Great Pāmīr.

This central portion of the Great Pāmīr, where the borders of Russia and Afghānistān meet on the glittering expanse of Lake Victoria, is probably the best known ground of the whole Pāmīr region. Nevertheless it was a great satisfaction for me to have reached it. Ever since my youth I had longed to see this, the truly 'Great' Pāmīr, of which Captain Wood, the discoverer of its lake (February 19, 1838), had given so graphic a description. This desire had necessarily increased since the closer knowledge gained of the topography of the whole of the Pāmīrs and of the territories adjoining them east and west had confirmed the belief that the memories of those great travellers, Hsüan-tsang and Marco Polo, were associated with the Great Pāmīr, the routes of both from Wakhān having led past it. I have previously had occasion to indicate the reasons that induce me to share that belief;[10] I need not, therefore, set them forth here in detail. But since Fate has allowed me to peruse, on the spot, the statements of the greatest of Chinese pilgrims and medieval travellers, I may be allowed to quote these and add some brief observations regarding them.

Hsüan-tsang's account of Pāmīr.

'On the north-east of the frontier of Shang-mi 商彌, skirting the mountains and crossing the valleys, advancing along a dangerous and precipitous road, after going 700 *li* or so, we come to the valley of Po-mi-lo 波謎羅. It stretches 1,000 *li* or so east and west, and 100 *li* or so from

[9] See Curzon, *Pamirs*, p. 45, quoting the interesting letter from two Jesuit priests at Kashgar dated November 26, 1759, and published in *Lettres Édifiantes*, xxxi. p. 248.

[10] See *Ancient Khotan*, i. pp. 30 sqq.; *Serindia*, i. p. 65.



377. ROCK DEBRIS THROWN DOWN BY EARTHQUAKE ON RIGHT BANK OF TANIMAZ RIVER, NEAR PALEZ.



378. YESHIL-KÖL LAKE, NEAR KAMPAR-CHUR.



379. KIRGHIZ CAMP NEAR HEAD OF BÄSH-GUMBAZ VALLEY.



380. BŪRUMAN RIDGE, SEEN ACROSS YESHIL-KÖL FROM MOUTH OF LITTLE MARJANAI VALLEY.



381. RANGE FACING BŪRUMAN RIDGE ACROSS WESTERN END OF YESHIL-KÖL.



382. TRANS-ALAI RANGE SEEN FROM CAMP YAMĀN-KARUCHIN, ACROSS ALAI VALLEY.



383. VIEW OVER YESHIL-KÖL FROM BŪRUMAN RIDGE.
Arrow marks mouth of Little Marjanai valley.



384. VILLAGE AND FIELDS OF SAUNĀB (TĀSH-KURGHĀN), RŌSHĀN.

north to south; in the narrowest part it is not more than 10 *li*. It is situated among the snowy mountains. On this account the climate is cold, and the winds blow constantly. The snow falls in summer and springtime. Night and day the wind rages violently. The soil is impregnated with salt, and covered with quantities of gravel and sand. The grain which is sown does not ripen; shrubs and trees are rare; there is but a succession of deserts without any inhabitants. In the middle of the valley is a great Dragon Lake; from east to west it is 300 *li* or so, from north to south 50 *li*. It is situated in the midst of the great Ts'ung-ling mountains, and in the central part of Jambudvīpa. The land is very high. The water is pure and clear as a mirror; it cannot be fathomed. The colour of the lake is dark blue, the taste of the water sweet and soft. In the water hide all kinds of aquatic monsters. Floating on its surface are ducks, wild geese, cranes, and so on. Large eggs are found concealed in the desert wastes, or among the marshy shrubs, or on the sandy islets. To the west of the lake there is a large stream, which, going west, reaches so far as the eastern borders of Ta-mo-hsi-t'ie-ti 達摩悉鐵帝 (Wakhān), and there joins the river Po-ch'u 縛芻 (Oxus), and flows still to the west. So on this side of the lake all the streams flow westwards. On the east of the lake is a great stream which, flowing north-east, reaches to the western frontiers of the country of Ch'ia-sha 佉沙 (Kāshgar) and there joins the Hsi-to 徙多 river (Yārkand R.) and flows eastward; and so all streams on the left side of the lake flow eastward. . . . On leaving the midst of this valley and going south-east, along the route, there are neither men nor villages. Ascending the mountains, traversing the side of precipices, encountering nothing but ice and snow, and thus going 500 *li*, we arrive at the kingdom of Chieh-p'an-t'o 朅盤陀 (Sarīkol).'[11]

Lord Curzon has already rightly emphasized the fact that 'the salient features of the account stand out as an unmistakable picture of the Pamir country'. He, too, has fully explained the geographical errors involved in the exaggerated extent and the eastward-flowing drainage ascribed to the 'great Dragon Lake'.[12] In the pilgrim's description of the latter it is easy to recognize that mixture of correct record of locally observed facts with naïve reproduction of traditional beliefs which is throughout characteristic of the pious traveller's narrative. The clearness, fresh taste, and dark blue colour of the water of the lake are just as he describes them. Its shores in the spring and autumn swarm with aquatic birds, and according to Kirghiz statements their eggs are then to be found in plenty amidst the thin scrub of the shores. That the imagination of old travellers passing this great sheet of water at such a height and so far away from human occupation should have credited it with great depth and peopled this with 'dragons' and other monsters is easy to understand. What legends, if any, are current nowadays about the lake I regret not to have been able to ascertain; for none of the Kirghiz who graze on the Great Pāmīr were within reach during my day's halt, being away in the higher side valleys to the east.

Hsüan-tsang's 'great Dragon Lake'.

Marco Polo's account of the 'Pamier' makes it equally clear that his route led him past the 'Great Lake'. 'And when you leave this little country (Wakhān), and ride three days north-east, always among mountains, you get to such a height that 'tis said to be the highest place in the world! And when you have got to this height you find [a great lake between two mountains, and out of it] a fine river running through a plain clothed with the finest pasture in the world; insomuch that a lean beast there will fatten to your heart's content in ten days. There are great numbers of all kinds of wild beasts; among others, wild sheep of great size, whose horns are good

Marco Polo on great lake of *Pamier*.

[11] See *Si-yu-ki*, transl. Beal, ii. pp. 297 sq.; transl. Julien, ii. p. 207 sqq.; Watters, *Yuan Chwang*, ii. pp. 282 sq. Regarding the identifications of *Ta-mo-hsi-t'ie-ti*: Wakhān; *Ch'ia-sha*: Kāshgar; *Hsi-to*: Yārkand River and its Sarīkol feeder; *Chieh-p'an-t'o*: Sarīkol; cf. *Serindia*, i. p. 62; *Ancient Khotan*, i. pp. 27 sqq., 35, 48.

As to *Shang-mi*, which Hsüan-tsang did not visit himself but describes in a way showing its location in the present Mastūj or Kāshkār-bālā, cf. *Serindia*, i. pp. 44 sq.

[12] Cf. Curzon, *Pamirs*, pp. 69 sq.

six palms in length. From these horns the shepherds make great bowls to eat from, and they use the horns also to enclose folds for their cattle at night. [Messer Marco was told also that the wolves were numerous, and killed many of those wild sheep. Hence quantities of their horns and bones were found, and these were made into great heaps by the wayside, in order to guide travellers when snow was on the ground.]

' The plain is called *Pamier*, and you ride across it for twelve days together, finding nothing but a desert without habitations or any green thing, so that travellers are obliged to carry with them whatever they have need of. The region is so lofty and cold that you do not see even any birds flying . . . '[13]

Accuracy of M. Polo's description.

This record has rightly been called by Sir Henry Yule one of the great Venetian's ' most splendid anticipations of modern exploration ', and Captain John Wood's narrative ' the most brilliant confirmation in detail of Marco's narrative '. Therefore only a few remarks need be added to the pages in which Marco Polo's great commentator and Professor Cordier have discussed it.[14] A sense of this being ' the highest place in the world ' strangely impressed me also, as my eyes, passing the extremity of the lake (Fig. 391), turned during that day of halt towards the distant and perfectly open vista which extended across the imperceptible watershed eastwards. The excellence of the pasture afforded by the Great Pāmīr was attested by reports of big flocks of sheep belonging to traders which were annually brought up from the Wakhān side. At the time of my passage they were grazing in the side valleys descending to the lake from the north. Marco's ' wild sheep ', the *Ovis Poli* justly named after him, still have favourite haunts in the heights above the lake. We met a herd of them close to the Bāsh-gumbaz pass, and on small grassy patches lower down came upon numerous horns and bones of others which, when driven down by the winter snow on the range, had fallen victims to wolves. During our halt Afrāz-gul's rifle promptly secured a fine head in the Kög-ütek-jilga to the north to serve me as a souvenir.[15] That halt, on August 27th, helped also to bring home to me the truth of Marco's remark on the cold of this Pāmīr. The minimum thermometer showed a temperature of 12° Fahr. below freezing-point, and with an icy wind sweeping along the lake shore at 13,990 feet above sea-level, it felt bitterly cold all day in spite of the sun shining from a speckless sky.

' Northern route ' of Kao Hsien-chih.

Apart from the interest attaching to those old travellers' accounts, my visit to the Great Pāmīr enabled me to gather local information throwing light on a Chinese historical record and strikingly confirming its accuracy. In describing Kao Hsien-chih's famous expedition of A. D. 747 across the Pāmirs and Hindukush, the T'ang Annals specially mention the concentration of the Chinese forces by three routes from east, west, and north upon the point on the Āb-i-Panja marked by the present Sarhad, from which that great leader then forced his way across the Barōghil and Darkōt passes. When previously discussing the details of this remarkable military exploit,[16] I had shown that the routes from the east and west, i. e. down and up the Āb-i-Panja valley, were clear beyond all doubt. But of a northern route which would have brought a portion of the Chinese general's force to Sarhad from the side of Lake Victoria no definite evidence could be traced in maps or books. Lord Curzon, it is true, in his celebrated monograph on the Pāmīrs had with characteristic thoroughness noted some vague and divergent indications which pointed to a pass giving access to the Āb-i-Panja from Lake Victoria.[17] Yet he also recorded that in August 1895, ' some members of

[13] See Yule, *Marco Polo*, i. p. 171.

[14] Cf. *ibid.*, i. pp. 172–8.

[15] Schultz, *Forschungen im Pamir*, p. 72, refers to the Zör-köl neighbourhood as being known to hunters for bears and panthers.

[16] See *Serindia*, i. pp. 53 sqq.; also *Geogr. J.*, 1922, February, pp. 117 sqq. For M. Chavannes's translation of Kao Hsien-chih's biography in the T'ang Annals, see *Turcs occid.*, p. 152, note 1.

[17] See Curzon, *Pamirs*, pp. 56 sqq., where those earlier



385. CLIFFS AND GUMBAZ AT SUME-TÂSH, ALICHUR PÂMÎR.



386. VIEW WESTWARDS FROM ODIÂZ-KÔTAL, ABOVE BARTANG GORGE.



387. ON ROOFS OF HOUSES IN SAUNÂB VILLAGE.



388. VIEW FROM HISSÂR FORT UP ÂB-I-PANJA VALLEY.



389. CROSSING BARTANG RIVER ON SKIN-RAFTS AT NUSUR.



390. JUNCTION OF TANIMAZ AND BARTANG RIVERS AT DARBAND ABOVE SAUNÂB.

most hamlets of Rōshān were all excellent cragsmen and quite experts in building *rafaks* or ledges of brushwood and stones along otherwise impassable precipices. It was fully five hours before a tolerably safe track had been made higher up and we had crossed the worst of those treacherous scarps (Fig. 375); yet the direct distance was scarcely more than a mile. At last we reached the head of the inlet, lined with half-submerged thickets of birch-trees and juniper. Ascending the valley amidst fine groves of trees for a couple of miles and then crossing what looked like an old terminal moraine, we arrived at a widening stretch where cultivation had been resumed, since the earthquake, by six Rōshānī families. Their smiling fields of barley and oats lay at an elevation of about 11,000 feet and some 500 feet above the level of the lake as it stood then. Yet even here dread was felt of the continued rise of its waters.

Ascent to Langar pass.

During a day's halt at this pleasant spot our hillmen succeeded in improving the track above the Yerkh inlet sufficiently to bring, somehow or other, their sure-footed ponies across. Accordingly on August 19th we moved up the valley to the south, which contains at its bottom a succession of small lakes formed by glacier action between old moraines. Small hanging glaciers showed at the heads of the side valleys on either side. The route had never been surveyed and had come into use only since that across the Marjanai pass between Sārēz and the Alichur Pāmīr had been blocked by the newly formed lake. As our route led continuously over old moraines and boulder-strewn fans, progress was troublesome. But fortunately on arrival at Ushinch, about 11 miles farther up, where the valley bottom widens in view of an amphitheatre of ice-crowned peaks to the south, we were met by fresh Kirghiz transport kindly sent by the Commandant of Pamirski Post. This opportune help made it possible to push up the valley, which now turned to SE. and widened into a Pāmīr-like expanse. After passing three more small lakes we camped at an elevation of about 14,400 feet.

Crossing to Shughnān side.

Next morning, ascending first to SE. and then turning east, we reached after a march of 5 miles the Langar pass, forming an almost level talus-covered saddle at about 15,400 feet. A large hanging glacier to the NW. of the pass sends its drainage partly to the small lake of Emīn-kōl, which we had come to before reaching the pass, and partly to the Langar-kōl on the other side. The descent into the Langar valley was easy and brought us mostly over gentle grassy slopes to the stone huts known as Langar. There we camped at an elevation of about 12,300 feet, after a total march of 20 miles.

## Section IV.—BY THE ALICHUR AND GREAT PĀMĪR

Route along Yeshil-kōl.

Our route from Langar turned eastwards to the Yeshil-kōl and Alichur Pāmīr, and as these as well as the Great Pāmīr to the south have been often visited and described,[1] the account of my rapid passage may be brief. Some points of special interest must, however, be noticed. On ascending from Langar the easy spur which separates the mouth of that valley from the western end of the Yeshil-kōl, an excellent view offered over the head of the Ghund valley leading down through Shughnān. Looking across its wide floor and the grass-covered easy slopes which flank it, we were able fully to appreciate the advantages offered by it for direct communication from the Pāmīrs westwards to the Oxus. It is true that the modern Russian cart-road which leads from Pamirski Post down to Shughnān leaves the Alichur Pāmīr above the Yeshil-kōl and does not enter the Ghund valley until more than thirty miles below the exit of the Ghund river from the lake. But the route which from the Alichur Pāmīr keeps to the Yeshil-kōl and then enters the Ghund

[1] For useful summaries of information concerning the Alichur Pāmīr, cf. e. g. Geiger, *Pamir-Gebiete*, pp. 131 sq.; Schultz, *Forschungen im Pamir*, pp. 61 sqq.; on the Great Pāmīr, Geiger, *ibid.*, pp. 128 sqq.; Schultz, *ibid.*, pp. 72 sqq.

valley at its head is certainly far shorter and offers no serious difficulty for laden ponies.[2] During the winter months, when heavy snow lies on the passes crossed by the cart-road to the south, the Yeshil-kōl route, which then runs partly over the ice of the lake, is in fact the only one used.

Historical use of Yeshil-kōl route.

It therefore seems safe to assume that this, the most direct route, was that mainly followed by the Chinese travellers and troops of whose moves across the Pāmīrs towards Shughnān we have definite historical record. Here it must suffice to refer to the account of Kao Hsien-chih's famous expedition of A. D. 747 across the Pāmīrs and Hindukush, which I have fully discussed elsewhere,[3] in the course of which that great commander personally led a considerable force from Kāshgar to Sarīkol and Shughnān; also to the journeys of the Buddhist monk Wu-k'ung, who in A. D. 751–2 passed from Kāshgar to Shughnān, and on his way back from India more than thirty years later again passed from Shughnān to Kāshgar.[4] In the case of the Chinese pursuit in 1759 of the fugitive Khōjas from Kāshgar, there is direct evidence of the use of this route in the Chinese inscription of Sūme-tāsh to be referred to below.[5] Nor would Sūme-tāsh have been a scene of bloodshed in 1892 had its position at the eastern end of the Yeshil-kōl not marked it out to the Chinese and then to the Afghāns as a suitable place for watching the route to Shughnān leading along the northern shore of the lake.[6]

View from Būruman ridge.

A further remark relates to the Būruman ridge, to which the route from the uppermost Ghund valley ascends immediately above the western extremity of the lake. With the experience recently gained at the large newly formed Sārēz lake, it was difficult to overlook those topographical features which seem to suggest that the Yeshil-kōl derived its existence, at least in its present shape, from a similar cataclysm at some earlier period. To the eyes of the non-geologist the formation of the Būruman ridge closing the western end of the lake (Fig. 381) seemed to bear a close resemblance to the newly formed barrage which has created the Sārēz lake. Of features indicating that the damming up of the lake at the Būruman barrier was due to an accumulation of moraines[7] I failed to see any trace. On the other hand a great gap on the deeply furrowed slopes of the range opposite showed the spot from which the landslide had shaken down the rock debris that now block what was before a deep-cut river-bed. The Būruman ridge, where the bridle-path crosses it, rises about 400 feet above the level of the lake,[8] and Fig. 383 shows the fine view which it offers over the winding sheet of turquoise-blue water. The Būruman ridge is seen in Fig. 380, as it presents itself from the mouth of the Little Marjanai valley.

Passage along lake shore.

About a mile before passing the picturesque little peninsula of Kamparchuk (Fig. 378) the route crosses a troublesome rock face, where the loads of the ponies had to be lightened. Farther on, near the grassy delta of the stream coming from the Great Marjanai valley, I was shown a circular stone enclosure, about 55 yards in diameter, known as Khitai-kurghān, and two smaller ruined enclosures of the same type within 200 yards' distance. They probably mark a station maintained during some period when the route to Shughnān was in use by Chinese. Of uncertain date are also three small destroyed mounds half a mile ahead. Near them a black stone block bears the Islamic creed and an invocation of 'Alī inscribed in sgraffito.

[2] Personal experience justifies my making this statement notwithstanding the remark of Schultz, *Forschungen im Pamir*, p. 66, about all traffic being obliged to make the great detour over the Koi-tezek pass.

[3] Cf. *Serindia*, i. p. 53; *Geogr. Journal*, 1922, February, pp. 117 sq.

[4] See S. Lévi et Chavannes, 'L'itinéraire d'Ou-k'ong', *J. As.*, 1895, Sept.–Oct., pp. 346 sq., 362; also below, p. 880.

[5] See below, ii. p. 858; Curzon, *Pamirs*, p. 46.

[6] See below, ii. p. 858.

[7] The huge landslide is duly mentioned in Schultz, *loc. cit.*, p. 67, but the formation of the lake ascribed to moraines.

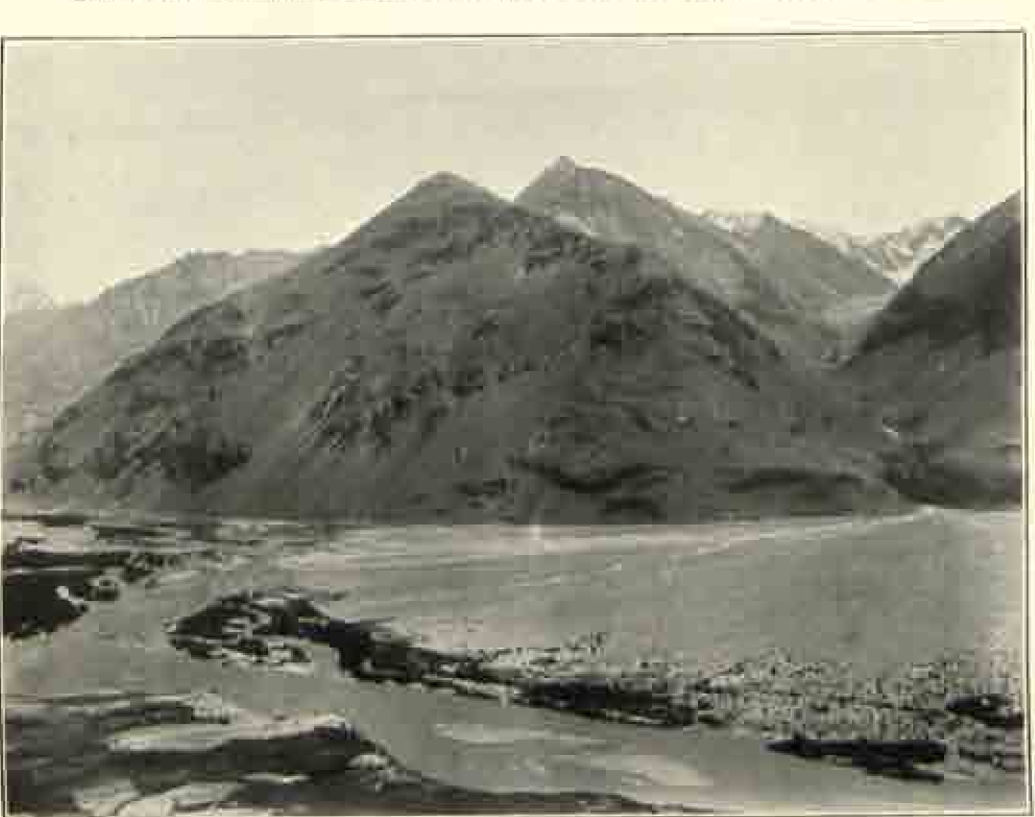
[8] The Russian map shows the elevation of Yeshil-kōl as 12,500 feet; Olufsen, *Unknown Pamirs*, p. 6, as 12,828 ft. (3,921 metres). My own aneroid record points to about 12,700 feet.



**301.** VIEW TO S.E. ACROSS EASTERN END OF LAKE VICTORIA, TOWARDS NICHOLAS RANGE.



**302.** HINDUKUSH RANGE SEEN ACROSS OXUS VALLEY FROM ABOVE LANGAR-KISHT.



**393.** AB-I-PANJA, WITH ALLUVIAL FAN OF DARA-I-PANJA ON LEFT BANK; SEEN FROM [illegible]



**394.** ON [illegible] PASS, LOOKING EAST.

the British Boundary Commission party essayed to discover this or some other pass over the mountain watershed south of Lake Victoria', but had failed and expressed their opinion that no such pass exists.

It was accordingly a pleasant surprise when careful inquiries from two much-travelled Kirghiz in our party resulted in definite and independent evidence of an old track, still regularly used by Wakhī herdsmen of villages on the Āb-i-Panja, which leads from the Wakhān side across the watershed range to the glacier-filled head of the Shōr-jilga valley, clearly visible from Lake Victoria. Descending this valley, which is shown in the Survey of India map without a name next to the east of the Bēsh-kunak-jilga, one either gains the open valley of the Pāmīr river, or else, over gentle peneplains, the south-western shores of the lake. The ascent to the pass from the Great Pāmīr side lies up the south-western branch of the Shōr-jilga, which the panoramic view (Fig. 360), taken from the mouth of the Bāsh-gumbaz valley, shows at the point marked with an arrow. On the northern side of the pass glacier ice has to be crossed. After passing the watershed the track drops down to the Kōk-moinak spur, where it bifurcates. One route descends into the southern Shōr-jilga, marked in the Survey of India map by the entry 'Shaor',[17a] and thence leads up the Āb-i-Panja to Langar. The other was said to cross in succession the heads of the grazing valleys of Boz-dektir and Tokuz-bāsh over easy slopes and thus to reach Sarhad. The description of the latter portion of the route agreed with what I had seen in 1906 from the Kansir spur of the range rising above Sarhad.[18] The information received was calculated to vindicate once again reliance on the topographical details preserved by the record in the Chinese Annals of Kao Hsien-chih's great alpine feat. My only regret was that regard for time and the Afghān border would not allow me to test them on the spot, as I had done in the case of the Darkōt and the battle ground south of Sarhad.[19]

*Pass above Shōr-jilga.*

On the morning of August 28th I left Lake Victoria for the journey down the Pāmīr river to Langar-kisht, where it joins the main branch of the Āb-i-Panja. The three marches in which we covered the distance of about 78 miles correspond to Marco Polo's three days' ride from 'Vokhan' to the great lake. The valley of the Pāmīr river has since Captain Wood's time been often described, and only few of my observations call for brief record here. In the upper Pāmīr-like portion of the valley one passes, about 4 miles below the outflow of the Bāsh-gumbaz stream, a natural hillock shaped like a cone and about 80 feet high. It is known as Mazār-dōbe and worshipped by the Kirghiz as the burial-place of holy warriors. Its curiously regular shape must in Buddhist times have made it appear as a 'Svayaṃbhū' Stūpa to pious eyes, and continuity of local worship probably accounts for its sanctity at the present day.[20]

*Start down Pāmīr river.*

references, British and Russian, to some direct passage between the Great Pāmīr and Āb-i-Panja valley are fully quoted.

The following brief remarks, based on the more exact topographical record in the Survey of India map (Northern Transfrontier Sheet No. 2 N.W., 1896) and on local inquiry, may help to clear up some points of the conflicting evidence there detailed.

Colonel Gordon's mention (1874) of 'the Wurm pass' approached from head of Lake Victoria probably applies to the pass at the head of the Kara-jilga from which the Waram valley debouching on the Āb-i-Panja above Langar can be gained. The name 'Shor Kara Jilga or Warram', appearing in an earlier Indian Intelligence map and shown also in Lord Curzon's map, seems to have been wrongly applied to the Burgutai or Chelap pass giving access farther east to the lower end of Lake Chakmaktin. The track of which Lord Curzon heard from his Kirghiz as running to Lake Victoria up the Nullah that he passed 'between 12 and 15 miles below Langar' (the Bahārak-dara) exists and leads to the Shōr-jilga pass discussed above.

17a In 1906 I heard the name *Bahārak-dara* applied to the debouchure of this valley.

18 See *Serindia*, i. Fig. 25.

19 Cf. *Ancient Khotan*, i. pp. 8 sqq.; *Serindia*, i. pp. 55 sqq., 67 sqq.

20 Cf. *Serindia*, iii. p. 1303. The same name 'Mazār-tapa' is through some misapprehension shown by the Russian and Indian Survey maps also for a Mazār passed farther down below the debouchure of the stream coming from the Khargōsh pass.

Routes from Khargōsh and Mats passes.

Where the route from the Khargōsh Pāmīr joins in, one reaches the well-made Russian bridle-path connecting Langar-kisht with the cart-road along the Alichur Pāmīr. The debouchure of the Khargōsh valley marks the boundary between Kirghiz and Wakhī grazing grounds on the right bank of the river, and there, at an elevation of some 12,700 feet, I learned of oats having been recently sown and reaped. On the level terrace of Paiga-tala a couple of miles lower down I noticed the remains of what looked like a ruined Obo, built of rough stones and about 15 feet long. Its E.–W. bearing precluded its being taken for a Muhammadan tomb. Old cultivation terraces were met with at Yol-mazār at an elevation of about 12,500 feet. About three miles lower we passed on the left bank the mouth of a wide grassy valley, known as Issik-bulak from a hot spring. From it a much-frequented track leads to the Sarighaz pass, the only one of the Wakhān range by which laden animals can be taken from the Pāmīr river to the Āb-i-Panja.[21]

Descent to Āb-i-Panja.

After passing on the third march the narrow Mats valley (Fig. 401), up which a convenient route leads to Shughnān, we came again and again upon old fields and canals abandoned within living memory, situated on terraces of the steadily widening valley. But from about 10 miles above Langar-kisht onwards stretches of actual cultivation become more and more frequent, on terraced slopes conveniently reached by irrigation, while small hamlets nestled among trees in sheltered nooks lower down. The road throughout commanded a grand view to the south, towards the snowy rampart of the Hindukush, guarded by needle-like ice peaks (Fig. 392). It afforded impressive assurance that the watershed towards the Indus was near, and nearer still the great fosse of the Āb-i-Panja valley below it which comprises Wakhān.

Arrival at Langar-kisht.

On the evening of August 30th I reached Langar-kisht, some three miles above the junction of the Pāmīr river with the Āb-i-Panja, and received a very kind welcome at the small Cossack post guarding the Russian portion of Wakhān. The close ethnic and political relations which at all times must have linked the uppermost Oxus valley with the Hindukush territories to the south was strikingly brought home to me by the fact that Sarbuland Khān, the Ming-bāshi of Russian Wakhān, who had ridden ahead to receive me, was a younger brother of 'Alī Mardān Shāh, the old ruler of Wakhān, now for many years past established at Ashkūman, and was well acquainted with Rāja Pakhtūn Wālī of Darēl and Tangīr. It was one of his sons living at Ashkūman who with his party of Wakhīs had two years before so valiantly helped me across the Chillinjī pass.[22]

[21] The application in the maps of the name *Sarighaz* to the valley itself, which does not drain from the pass, seems to be due to some misapprehension.

[22] See above, i. pp. 50 sq.

# CHAPTER XXVI

## IN THE REGION OF THE UPPER OXUS

### SECTION I.—OLD REMAINS IN WAKHĀN

IT was a great satisfaction for me to find myself once again on the Āb-i-Panja, the main branch of the Oxus. In 1906 I had been able to follow only the uppermost course of the river between Sarhad and its source at the glaciers of the Wakhjīr, and access to the main portion of Wakhān was then barred to me on either side of the river. In Chapter III of *Serindia* I have already indicated the special historical and geographical interest that Wakhān, remote as it is and poor in climate, population, and resources, may claim as the most direct thoroughfare from the fertile regions of ancient Bactria to the line of oases along the southern rim of the Tārīm basin.[1] I have fully discussed in the same chapter the comparatively abundant early notices of Wakhān which the records of Chinese Annalists and travellers as well as of Marco Polo have preserved for us. In modern times Wakhān has, since Captain John Wood's pioneer journey in 1838, been repeatedly visited and described by qualified European observers, and the graphic account contained in the classical narrative of that journey still holds good as regards the general character of the valley, its people, and their conditions of life.[2] I may therefore restrict myself here mainly to a description of the ruined sites that I was able to examine on my passage along the northern bank of the river, and to a brief record of such local observations as have a direct bearing on the ethnic and historical past of the territory.

Historical interest of Wakhān.

A day's halt at Langar-kisht, made pleasant by the sight once more, after so long an interval, of trees, ripening crops, and green meadows, was employed in collecting anthropometrical materials. In the course of this work, continued elsewhere in Wakhān, I was struck again by the prevalence of those characteristic features of the *Homo Alpinus* type which I had noticed among the Wakhīs examined on my second expedition, and which had caused Mr. Joyce to recognize in them the nearest congeners of the Iranian Galchas or hill Tājiks.[3] Starting on September 1st we approached, at a distance of a mile and a half, the junction of the two branches of the Oxus coming from the Great Pāmīr and Sarhad (Fig. 393), near the little hamlet of Hissār. Close to the east of it there rises an isolated rocky ridge to a height of about 90 feet above the level of the fields, bearing on its narrow top the massive walls of the ruined fort (Fig. 396) to which the hamlet owes its name.[3a]

*Homo Alpinus* type among Wakhīs.

As the sketch-plan, Pl. 45, shows, the approach to the fort leads up from the south-west, the cliffs elsewhere being very precipitous and in some places unscalable, which accounts for the north-western face of the hill-top being left without walls. The protected area is about 140 yards long, with a maximum width of about 75 yards. At one point the approach passes through a large mass of rock split through in the middle, and over this natural gate I noticed remains of a horizontal

Ruined fort of *Hissār*.

[1] See *Serindia*, i. pp. 60 sqq.

[2] To the accounts in English quoted in *Serindia*, i. p. 61, note, should be added Olufsen, *Through the Unknown Pamirs* (London, 1904), with useful contents mainly ethnographical; Schultz, *Forschungen im Pamir*, pp. 139 sqq.

[3] Cf. *Serindia*, iii. p. 1360; below, Mr. Joyce's App. C.

[3a] A somewhat highly coloured description of the Hissār fort (called there 'Zengi-bār') is given in Olufsen, *loc. cit.*, pp. 176 sqq. The measurements of the ground-plan cannot be reconciled with our survey.

information and the condition of their interior. In front of the lower caves a walled space had served as shelter for cattle, and the headman of Warang remembered how in his youth the people of the village used to place their cattle, as well as their womenfolk, here for the night when raids of Afghān soldiers or Kirghiz were expected. There was nothing to indicate the age of these humble cave shelters, nor to justify their being dignified with the name of 'cave fortress'.[10]

Captain Wood's visit remembered.

While proceeding the same day to Yamchin, 6 miles lower down, I had on the way opportunities for two interesting observations. At the hamlet of Wenukut I was able to pay a visit to Ihsān Karīm 'Alī Shāh, the chief 'Pīr' of the Ismailias of Wakhān, who was staying there to perform faith-healing on a sick 'Murīd' or devotee. The old man, worshipped as a great saint, claimed an age of well over a hundred years, and his bodily state seemed to support this. Yet his mental faculties were not impaired, and to my surprise he furnished exact data which left no doubt about his having at his home been the host of Captain Wood, when in the winter of 1838 he was on his way to the Pāmīrs. He had clear recollections, too, of the tyrannical rule of Sultān Murād of Kunduz, often named in Wood's classic narrative.

Khandūt, Hsüan-tsang's *Hun-t'o-to.*

On nearing Yamchin a good view was obtained of Khandūt, on the opposite bank of the Āb-i-Panja, situated on a fertile alluvial fan. With its 50 to 60 houses it is considered the largest village of Wakhān. In former times it may have been larger still; for two abandoned canals could be seen above that now in use, and there is plenty of additional cultivable land commanded by them. The identity of Khandūt with *Hun-t'o-to* 昏馱多, which Hsüan-tsang mentions as the capital of Wakhān, is not subject to any doubt.[11] The pilgrim describes a Buddhist convent in the centre of the town 'built by the first king of the country', and the miracle observed in the great Vihāra of this convent about a canopy of gilt copper suspended above a stone statue of Buddha. It was therefore of special interest to me to learn that Khandūt possesses a famous Ziārat, visited as the resting-place of a saint, Shaikh Bēg, and marked by an old mosque. The shrine was not visible from across the river, being hidden in a grove near the western edge of the fan. But the conspicuous domed tombs close to it suggested a sanctuary of importance, such as tenacity of local worship might lead us to expect in the place of the Buddhist Vihāra.[12]

Ruins of *Zamr-i-ātish-parast.*

A day's stay at the pretty hamlet of Yamchin was devoted to a survey of the large hill stronghold known as *Zamr-i-ātish-parast* near by. It was duly noted by Captain Wood, and a sketchy account of it is found in Captain Olufsen's book.[13] Its remains are remarkable enough in extent and construction to warrant a detailed description. As the sketch-plan in Pl. 47 shows, the fortifications ascend a height of about 1,000 feet on the extremity of the steep spur which flanks the debouchure of the Yamchin stream from the north-west. A peculiar bifurcation of the Vichkut stream, which descends in a gorge farther west, has cut off the lower end of the spur from the rest and given it the shape of a triangle, the base of which faces SE. The foot of the spur is reached beyond the scrub-covered mouth of the Yamchin stream at a distance of about a mile from the hamlet. About 400 feet higher up on the bare rocky slope the outermost line of the defences is

[10] See Olufsen, *Unknown Pamirs*, pp. 89 sqq. The 'ramparts' of an 'upper fortress' there referred to are in reality the walls supporting terraced fields, now abandoned, on the plateau above the cliffs, to which a *jaubār* or canal, since washed away, once carried water.

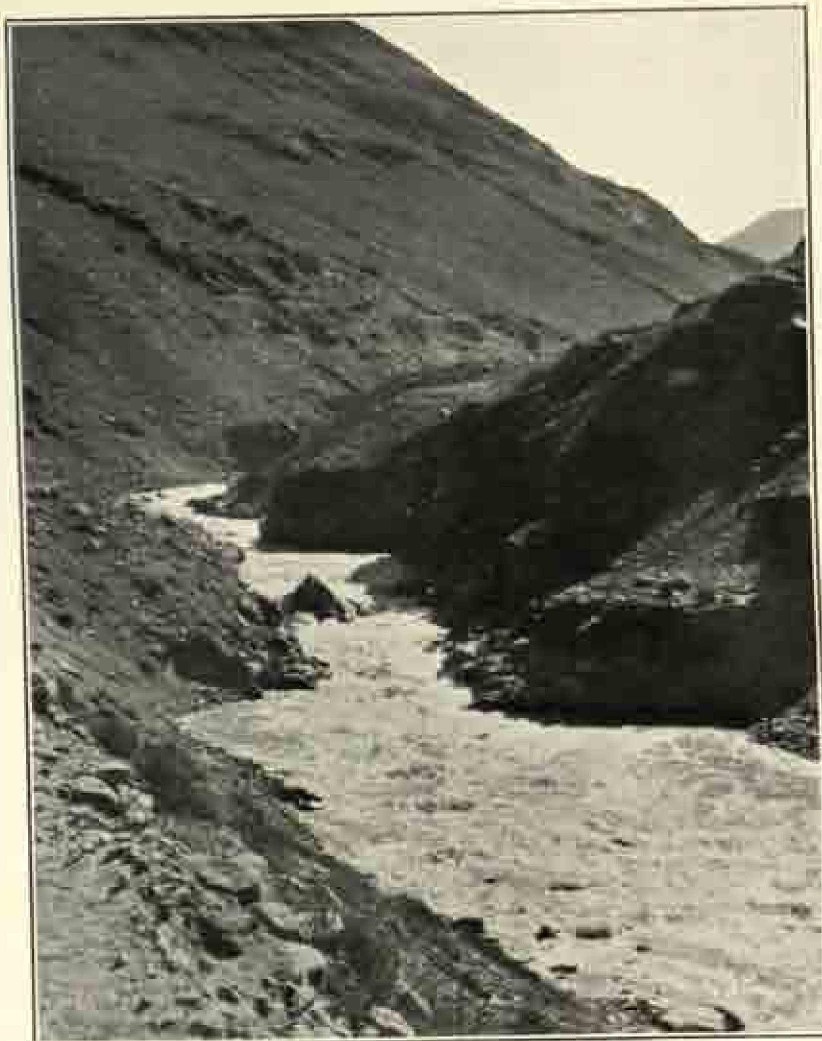
On p. 92 the frequent occurrence of small caves, natural or artificial, still used as dwellings by poor people in Wakhān, is correctly mentioned.

[11] Cf. Julien, *Mémoires*, ii. p. 201; Watters, *Yuan Chwang*, ii. p. 279; *Serindia*, i. p. 63.

[12] I may note here that at Yamchin I was told that at a Ziārat of the village of Inif, almost opposite on the left bank, there is to be seen a stone slab with the footprints of a holy man. These may well have received worship before as *pādukās* of some Buddha or Arhat. Another stone was said to represent a sheep petrified by the same holy man's curse.

Both Khandūt and Inif, being on the Afghān side of the river, were inaccessible to me and also to Afrāz-gul.

[13] See Wood, *Source of the Oxus*², p. 218; Olufsen, *Unknown Pamirs*, pp. 183 sqq.



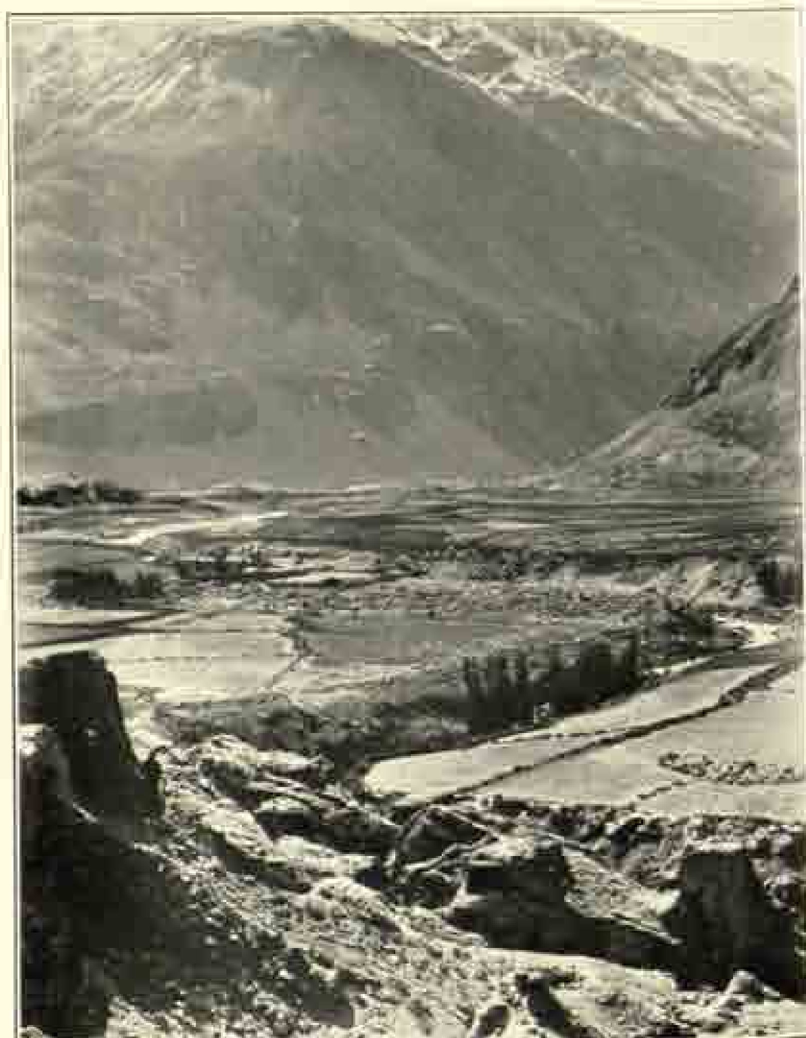
401. RAPIDS OF GREAT PĀMĪR RIVER NEAR MOUTH OF MAYS VALLEY.



402. VIEW UP WESTERN FACE OF CIRCUMVALLATION, ZAMR-I-ĀTISH-PARAST.



403. LOOKING DOWN WESTERN LINE OF WALL AND TOWERS, ZAMR-I-ĀTISH-PARAST.



404. TOWERS AT SOUTH-WEST CORNER OF QALA-I-QA'QA, WITH VIEW DOWN ĀB-I-PANJA.

entered through a still recognizable gate, i, apparently double and flanked by round towers. From there a wall 4 feet thick and in part still standing to a height of 11 feet runs to the north-east, where it ends (ii) at precipitous cliffs descending into the gorge of the Yamchin stream. The side of this gorge along the whole length of the fortified area is formed by unscalable precipices, and thus provides a natural line of defence, rendering walls unnecessary.

Construction of walls.

The outermost line of wall continues from the gate to the NW. until it meets the inner circumvallation. Where it ascends the steep slope it has been much broken. But where well preserved it clearly shows a thickness of 6 feet. The walls of the stronghold are throughout built of unhewn blocks of stone, set in irregular layers, yet with care, and compacted with mud plaster which shows much consistency. Of the round towers that strengthen this line of walls, the one at the eastern end is the best preserved, showing an inside diameter of 13 feet. Like the rest, it is built of sun-dried bricks, 12″×9″×4″ in size, on a solid foundation of stone about 3 feet high. Its wall is about 6½ feet thick and provided with loopholes at a height of about 3 feet from the inside ground level. The width of the loopholes, 12 inches within, narrows to 8 inches outside, suggesting that they were meant for the use of bows and not of fire-arms. The same arrangement was observed elsewhere, the height of the loopholes varying from 2′ 3″ to 3′.

Inner circumvallation.

The second line of wall starts from the edge of the Yamchin gorge where it faces on the other side the ruins of the outlying fort of Zulkhomār (Fig. 409). From there it runs for a distance of some 450 yards across the width of the spur to the SW. as far as a steep knoll which overlooks the deep-cut cañon of the Vichkut stream. The wall, from 4½ to 5 feet in thickness, shows loopholes, of the type above described, at approximate intervals of about 8 feet. Where it ascends over a steep rocky slope towards the knoll just mentioned, it still rises to 15 or 16 feet and shows a double row of loopholes. This portion of the line is strengthened by 17 towers (Fig. 405), most of which are round, having an average diameter of about 13 feet within. Their state of preservation differs much, but it seems that about half the perimeter of the round ones projected beyond the curtain wall, loopholes piercing the tower wall also on the inward side. An inner wall appears to have originally accompanied the second line of defence throughout, keeping at a distance of about 6 feet from the curtains. But being only 1½ to 2 feet thick, it has disappeared over considerable stretches. It is best seen along the western face of the circumvallation, as shown by Fig. 403. It deserves to be noted that this inner wall shows no loopholes. In some places traverses seem to have divided the passage between the double lines of wall, as if intended to permit independent defence of separate sections of the enceinte. Communication between these might ordinarily have been maintained along the parapet of the outer wall. The gate passing through this was located at the point, marked iii in the sketch-plan (Pl. 47), where a quadrangular bastion flanks a re-entering angle of the wall line. Small rooms traceable within the bastion served, no doubt, as quarters for the guard. From outside a walled ramp led up to the gate.

Towers above Vichkut gorge.

The line of wall, here badly broken, curves up to a massive tower occupying the top of the above-mentioned knoll and then turning NNW. ascends across a small dip in the western flank of the spur. This depression is reached at the present day by a path which comes from cultivation beyond the Vichkut gorge and traverses the latter where its rock walls are somewhat less difficult than elsewhere. Thence the line of walls turns to N. and where it approaches a somewhat less inaccessible portion of the scarp above the Vichkut gorge is guarded by a fairly well preserved tower, iv, measuring 15 feet in diameter within and having its superstructure built of bricks, 16″×11″×5″ in size (Fig. 403). Below it projects a very massive outwork (Fig. 408), built up on the slope above the Vichkut gorge before it falls off in sheer cliffs. The walls of this oblong outwork as well as of the tower are decorated above with a course of triangular niches formed of large bricks



395. RUINED WALLS OF ZANGIBĀR FORT, WAKHĀN.



396. RUINED FORT OF HISSĀR, SEEN FROM NORTH-EAST.



397. HINDUKUSH PEAKS ABOVE ISHMARG, SEEN ACROSS ĀB-I-PANJA.



398. KALA-I-PANJA, SEEN FROM RIGHT BANK OF ĀB-I-PANJA.



399. VILLAGE OF WARANG, WAKHĀN.



400. ISHKĀSHM AND PLATEAU TOWARDS ZEBAK, SEEN FROM NUT ACROSS ĀB-I-PANJA.

set on edge. A similar decorative band, done in stone, was seen on the gate tower, iii, and on the lowest tower of the Zulkhomār fort.

Citadel of fortress.

Farther up, the wall curves round the top of a small concavity in the scarp (Fig. 402) and is here defended by three massive round towers, of which Fig. 403 shows two. In the uppermost, v, which is also the best preserved, there can be seen a double row of loopholes and, at a height of 5 feet above the lower row, the sockets in which the beams supporting a floor were once fixed. From this point, which is about 600 feet above the level of the outer gate, the wall ascends in an almost straight line nearly 400 feet higher (Fig. 402) until it reaches the southern corner of the triangular citadel, vi, which crowns the top of the spur (Fig. 406). This fort, of which a detailed sketch-plan is shown in Pl. 48, extends northward for about 130 yards. From the point where its two longer sides meet there projects to the NW. a kind of ravelin (Fig. 410), ending in a massive square tower which guards the only approach to the fortified area from the plateau rising above it.

Ravine below N. extremity of citadel.

From this higher ground the narrow rocky ridge bearing the citadel is separated by a narrow ravine (Fig. 406), the bottom of which lies about 120 feet below the square tower just mentioned. This ravine owes its existence to the Vichkut stream having diverted a portion of its volume towards the Yamchin gorge and thus cut through the narrow neck of conglomerate which once joined the fortified portion of the spur to the Yāzh plateau above it. This curious bifurcation was made possible by the fact that the bed of the Vichkut stream, where it passes the plateau, lies much higher than the Yamchin gorge. To-day, most of the Vichkut water cascades down to the Yamchin stream, while of the rest a portion is caught in a canal which takes off near the same place to irrigate the fields of Putup. Thus but little water is left for the deep-cut cañon which the Vichkut stream had carved out for its course before that bifurcation took place. I may add that terraced fields higher up on the Yāzh plateau are irrigated from the Yamchin stream, which is fed by glaciers and is much larger than the Vichkut.

Construction of citadel.

The walls enclosing the citadel are built of slabs of stone, unhewn but carefully adjusted and set in fairly hard plaster. This masonry looked scarcely inferior to that observed in dwellings of the Buddhist period in Swāt and elsewhere on the Indian NW. frontier. The outer walls, everywhere loopholed, show a thickness of 3½ feet and carry a parapet about 1½ feet wide. They still rise to a maximum height of 13 feet, but show in places repairs in inferior masonry. A series of round towers strengthen the circumvallation on all faces. Apartments of varying size are found within, the dividing walls being generally 2 feet thick but equally solid. The fact that these quarters were built mainly against the southern and western wall faces may be attributed to the better protection afforded there against the bitter winds of Wakhān, which for a great portion of the year blow with particular force up the valley. I was not able to trace the position of a gate to the citadel, and conclude that the entrance may possibly have lain through the narrow passage, now blocked up, at the north-western corner (Fig. 410).

Descent into Yamchin gorge.

As already stated, there were no walls needed to protect the position on the side towards the gorge of the Yamchin stream; for there the extremely precipitous rock walls provided adequate defence if watched from above. But where the previously mentioned track from the Vichkut stream, after crossing the fortified area, strikes the edge of the Yamchin gorge, we found it continuing downwards over a narrow ledge of walled-up masonry which looked decidedly old. Without this supporting wall the descent along the steep cliffs would be very risky, if not impossible. We followed the track to a point about 200 feet above the bottom of the ravine without finding traces of a tower or other defence to close access along it. It seemed possible that a gate-tower or the like had completely disappeared here owing to the precipitous slope having caused the foundations to give way.

Opposite to the eastern end of the main circumvallation a small rock island rises between forking branches of the Yamchin gorge (see Pl. 47 and Fig. 409). Of these two the eastern one is no longer reached by the stream, though it was, no doubt, once eroded by it. The isolated rocky eminence lies well below the level of the spurs flanking the Yamchin gorge on either side, and is curiously shaped like an arm bent at right angles. Its top, nowhere more than 40 yards wide and less in most places, bears the walls of a small fortification known as *Zulkhomār*. Its walls, though very massive, have suffered much decay, probably through the steep slopes offering little room for secure foundations. Their construction corresponds in all respects to that of the main stronghold. The approach seems to have led up from the ravine to the south-eastern extremity of the fort, which faces the tower ii of the lower line of walls of the main stronghold.

Outlying fort of Zulkhomār.

No direct archaeological or other evidence is at present available as regards the date of this remarkable stronghold. But the extent, solidity, and general character of the defences distinctly point to pre-Muhammadan times, and this is borne out both by the name and by local tradition. The name 'Zamr-i-ātish-parast' is of special interest because it indicates some recollection of Zoroastrian fire-worship, such as even this eastern extreme of ancient Īrān is likely to have known. Captain Wood records of the 'three Kāfir forts' of Hissār, Zamr-i-ātish-parast, and Namadgut that the natives believe them 'to have been erected by the Guebers or Fire-worshippers',[14] and rightly refers to a Wakhī custom which indicates 'lingering remnants of Zoroastrian creed'.[15] It would scarcely be safe to deduce more from this statement than that local belief at the time attributed those strongholds to 'Kāfirs' or unbelievers, just as it does now, and identified these with followers of the ancient pre-Muhammadan creed of Īrān. But in any case we may credit it with a far closer approximation to historical likelihood than the theory elaborated at length in a more recent European traveller's book which seeks to identify those 'Kāfirs' with the Siāhpōsh of Kāfiristān.[16] The Wakhīs certainly know of these modern Kāfirs and have heard of the murderous raids they used to make, down to the last century, into the valleys north of the Hindukush adjoining their own. If asked about the 'Kāfir' builders of those strongholds, they would obviously prefer to identify them with those at one time dreaded tribes than acknowledge that their own ancestors could have ever been 'Kāfirs'. Considering all we know now about the primitive state of civilization prevailing among those barbarous hillmen of Kāfiristān, a theory which would credit them with a lasting reign over Wakhān and the construction of such elaborate fortifications scarcely calls for serious critical examination.

Alleged 'Kāfir' origin of fortifications.

Without systematic excavations no attempt can be made to ascertain the exact period to which Zamr-i-ātish-parast and the closely corresponding fortifications of the 'Castle of Qaʿqa' near Namadgut owe their construction. But certain general observations may safely be offered even in the absence of chronological or other definite data. The extent and solidity of the defences clearly show that at the time of their erection Wakhān must have possessed a population and resources greatly in excess of those to be found there at present.[17] The extent of cultivable land can scarcely

Want of chronological data.

[14] Cf. Wood, *Source of the Oxus*², p. 218.

[15] *Ibid.* He thus mentions the unwillingness to blow out a light by the breath, a characteristic trait which was observed by him also in Badakhshān.

[16] See Olufsen, *Unknown Pamirs*, pp. 173 sqq., with much of conjectures unchecked by available historical knowledge. The need of critical caution applies also to the description given on pp. 183 sqq., of the 'Siaposh fortress at Yamchin', as appears, e. g., from a comparison of the plan in Pl. 47 with the estimated circumference 'of about 12 kilometres' for the walls.

[17] I am not aware whether an official Russian census of Wakhān is available. I may therefore note here the number of homesteads as indicated to me by Qāzī Qadam Shāh, of Shītkharw, a well-informed notable, for the five Aksakālships of Wakhān: Langar 44, Zang 40, Warang 36, Putup (including Yamchin) 34, Shītkharw 36.

The number of individuals in a single homestead might, I was told, vary from 5 to about 30. Assuming an average of 10, these figures suggest for the Russian portion of Wakhān (above Ishkāshim) a total approximating 2,000 souls.

The population on the Afghān side, including the Sarhad

vaulting. The enclosing walls are of very solid construction and even near their top fully 6 feet thick. At some points the circumvallation has been strengthened by oblong bastions. Apart from small rooms built in places against the enclosing wall, the interior contains a number of detached structures, all badly decayed. Most of these are of oblong shape and divided into rooms of small size; but a few at the north-eastern end are irregular ovals. Fig. 388 shows the rough masonry of these structures, which, no doubt, served as habitations when regard for safety compelled occupation of the fort. That the period of occupation was not continuous may be concluded from indications of repeated repairs. Local tradition ascribes the fort of Hissār, like the other defences to be noticed farther on, to 'Kāfir' occupants of Wakhān, i.e. to pre-Muhammadan times.

Antiquity of walls.

In spite of the hardness of the mud plaster in which the rough slabs of stone are set, it would be difficult at first sight to credit this statement of great age, were it not for the extreme aridity of the Wakhān climate, which equals that of Sarīkol.[4] It must also be borne in mind that the construction of the walls here, as at the other old Wakhān strongholds examined, rough as it looks, is yet distinctly superior to that found in the houses or rather hovels occupied by the present population. Here, as at the other sites, I was strongly reminded of structural features made familiar to me by the many ruined dwellings scattered on the hill-sides in Swāt and in neighbouring parts of ancient Gandhāra. These undoubtedly belong to Buddhist times, and for the most part show masonry quite as rough. Yet climatic influences on the Indian North-west frontier are undoubtedly far more destructive than those to which the ruins of Wakhān are exposed. Unfortunately at none of these sites was it possible to secure coins or other datable relics.[5] What scanty pottery debris could be picked up at Hissār did not include any decorated pieces. But some of the plain potsherds showed a fine brownish surface and well-levigated clay, such as are unknown to modern local manufacture. To the question who are meant by the 'Kāfirs' to whom local belief invariably attributes these ruined fastnesses, I shall have to return farther on.[6]

Ruined fort of *Zangibār*.

About a mile to the west of Hissār lies Zang (about 9,700 feet above sea-level), which comprises some forty households and is the largest village on the Russian side of Wakhān. Its terraced fields and tree-hidden homesteads stretch along a broad glen well watered by springs. To the west of Zang a steep spur rises to close on a thousand feet above the village, and at its southern extremity bears the ruins of a small fort forming an irregular oblong of about 60 yards by 25 and known as Zangibār (Fig. 395). The interior, as the sketch-plan in Pl. 46 shows, is filled with the remains of dwellings built, like the enclosing walls, of unhewn stone slabs. Up to a height of about 6 or 7 feet these are set in fairly uniform courses with hard mud plaster, while above them much rougher stonework indicates later repairs. A small square bastion projecting on the northern face and provided with loopholes appears to have been originally an isolated tower to which the rest was subsequently added. The villagers attributed the construction of the fort to 'Kāfirs', but acknowledged that during their fathers' times it was occasionally sought as a place of refuge when raids of Kirghiz or Shughnānīs threatened. The absence of pottery debris suggested temporary occupation for short periods only.

Wakhī emigration.

The scarcity of land capable of irrigation under existing conditions, together with the oppression prevailing on the Afghān side of the valley, accounts for the numerous Wakhī emigrants to be found nowadays to the south of the Hindukush.[7] Most, if not all, Wakhīs belong to the Ismailia

[4] See my remarks on the old walls of sun-dried bricks at the forts of Kansir and Kiz-kurghān, *Serindia*, i. pp. 69, 75.

[5] It ought to be borne in mind that the factor which in India, as probably elsewhere also, is responsible for most of the finds of coins and similar relics at old sites, viz. occasional heavy rainfall, is practically unknown in Wakhān and in Sarīkol also.

[6] See below, ii. p. 869.

[7] I had found Wakhī colonies in Guhyāl (cf. *Ruins of Khotan*, pp. 45 sqq.), in Mastūj (cf. *Desert Cathay*, i. p. 41

or Maulāī sect of Islām, which is widely spread in the Hindukush valleys from Hunza to Chitrāl and worships its spiritual head in H.H. the Aga Khān of Bombay. Hence frequent intercourse is maintained across the snowy range to the south, notwithstanding the close watch which was said to be maintained by Afghān posts below all the more accessible passes. Thus I found it easy, while halted for one night at Zang, to arrange for the transmission of a mail to India via Chitrāl. My letters were carried across the difficult Wūst pass to Shuyist by two hardy Wakhīs who had swum the Oxus on skins at night-time to escape Afghān attention, and reached Peshawar safely within little more than a week.

March to Warang.

My march of September 2nd down the valley illustrated throughout that frequent interchange of shingle-covered fans, rocky promontories, and stretches of riverine sands with fields and meadow land to which Hsüan-tsang's description of Wakhān refers.[8] Four miles below Zang we passed in full view of Kala-i-Panja (Fig. 398), the seat of the Mīrs of Wakhān in modern times and now occupied by the chief Afghān post in the valley. Counting only some 15 households and situated by the side of a huge fan of detritus, this 'capital' of Afghān Wakhān looked a very desolate place. But here, as farther down opposite Ishmarg (Fig. 397) and at other points of the valley, grand vistas opened to the south. Towering above narrow side valleys, and seemingly quite near, magnificent ice-clad peaks of the Hindukush main range could be seen, looking just like peaks of jade or silver, as Sung-yün and his fellow pilgrim Hui-shêng describe them, on their passage down the 'kingdom of Po-ho' or Wakhān, A. D. 519.[9] After passing verdant patches of cultivation at the hamlets of Shergin, Daresh, and Nichgar, separated by stretches of rocky or sandy waste, we reached a pleasant camp at Warang (Fig. 399), about 9,700 feet above sea-level.

'Kāfir' fort of Zangibār

From there I visited on the same day a reported 'Kāfir' fort situated high up on a spur to the north-west, which overlooks the cañon-like debouchure of the Warang stream. The fort, also called Zangibār, was found to consist of a roughly built line of wall defending the narrow southern end of a rocky ridge on those sides on which unscalable cliffs falling off towards the foot of the Warang gorge do not afford protection (see the sketch-plan, Pl. 46). Within the enclosed area, which measures about 108 yards with a width of only 20 yards, crumbling walls, built, like the enclosure of unhewn stone, without any plaster, divide small quarters. The remains of a much-decayed square tower and a narrow oblong platform with several small mounds on the top were also observed within the enclosure. Some hundred yards to the north, a modern looking tower, known as 'Tōp-khāna', was said to have been used down to recent times to watch a track leading across the spur against raiders from the Shughnān side.

Cave-dwellings near Warang.

On September 3rd I visited a series of small cave-dwellings carved into the conglomerate rock face which overlooks the debouchure of the Warang stream about three-quarters of a mile west of the village. They extend in irregular groups for about half a mile, most of them situated on levels but little above the top of the talus slope below more or less vertical cliffs. The approach to them lies either over 'Rafaks' or little galleries built with sticks, &c., now almost all broken, or through narrow passages cut in the rock and connecting them. All these caves are rough excavations, and none that I was able to examine exceeded 15 feet or so in depth or width. Many have partially fallen in, owing to erosion proceeding along the deep ravines which cut up the face of the cliffs. That these caves were occupied down to quite recent times was evident both from local

sqq.), and Sarikol. As graziers Wakhīs are to be found in places along the higher slopes of the K'un-lun as far east as the Sanju pass.

This infiltration of an Iranian element to the south of the Hindukush and into the south of the Tārīm basin has a distinct linguistic and historical interest as regards an earlier period also. But the mere mention of it must suffice here.

[8] Cf. *Serindia*, i. p. 63.

[9] Cf. Chavannes, *Voyage de Song Yun*, p. 23; Marquart, *Ērān-šahr*, p. 224.

have changed materially within historical times, nor can the volume of water available for irrigation, given the vicinity of two high snowy ranges. But flocks and herds play a great role in the economic conditions of Wakhān, and during periods when a strong rule assured safety from raiding neighbours on the side of Shughnān and the Pāmīrs, these must have represented a very considerable addition to local resources. Nor ought those sources of profit to be ignored which might have accrued from a brisk trade between the Tārīm basin and Badakhshān by this route during periods of assured security. The vicinity of Khandūt, the old capital of Wakhān and probably its naturally most favoured site, suggests that the spur above Yamchin, very strong by nature, was fortified, perhaps, for the purpose of serving as a safe refuge for the rulers. They alone could have carried out so extensive a scheme of defences and provided for adequately manning them.

Position fortified as temporary refuge.

In character the defences correspond in a very striking fashion to the mountain fastness of Ādh-i-samūdh in the vicinity of Kohāt, which I surveyed in 1904, and to that of Kiz-kurghān in Sarīkol.[18] In each case a position naturally very strong was fortified to serve as a temporary refuge in case of serious danger, not for the purpose of permanent occupation. This view is supported by the great scarcity of potsherds at the site above Yamchin—I found only a few behind the main circumvallation and within the citadel—and also by the absence of any remains of habitations except within the latter.[19] The parallel offered by the remains of Kiz-kurghān is particularly instructive also in another respect. I have been able to prove in *Serindia* that these are identical with the mountain stronghold which is mentioned by Hsüan-tsang as the site of a legendary event ascribed by local tradition to Han times and which had become ruined long before his own passage in A.D. 642.[20] If so much of the walls of Kiz-kurghān, built with sun-dried bricks and rough stonework above slopes if anything even more precipitous than at Zamr-i-ātish-parast, could survive to the present day, it does not seem impossible that the fortifications of the latter site—no doubt, on the whole somewhat better preserved—were already in being when Hsüan-tsang passed through Wakhān, or were erected not very much later. For it should be remembered that the climate of Wakhān is probably quite as dry as that of Sarīkol, and the snowfall on Kiz-kurghān, at a height of about 13,000 feet, if anything heavier than at the Wakhān site.

Cliff of *Līw-bar* near Shītkharw.

On September 5th our march down the valley past the pretty hamlets collectively known as Putup brought us, after we had proceeded some 7 miles, to a portion of the 'thalweg' which drift-sand, carried up from the wide river-bed by the prevailing western winds, has converted into a sandy steppe, with tamarisk-cones and desert scrub curiously reminiscent of the Tārīm basin. At the small village of Shītkharw, reached after a march of another 7 miles, on a fertile alluvial fan, I was joined by Qāẓī Qadam Shah, whose intelligent help enabled me during the next few days to secure specimens of Ishkāshmī, a Galcha language not previously recorded.[21] Farther down, where an extremely steep cliff (Fig. 448) rising above the river used, before the making of the Russian bridle-path, to be passable only by sure-footed men with the use of 'toe-holes', he showed me a curious recess in the rock known as *Līw-bar* (Persian *dīw-dara*). Here a demon, who was wont to kill people passing, is believed to have retired into the mountain on being vanquished by a saint.

Before reaching the village of Darshai, where we halted, a remarkably narrow cañon had to be

tract, was believed to be somewhat greater, notwithstanding the drain due to emigration caused by the prevailing exactions, &c.

[18] See Stein, *Archaeological Survey Work in NW. Frontier Province*, 1905, pp. 2 sqq.; *Serindia*, i. pp. 73 sqq.

[19] I may note here that I could find no traces of terraced fields on the slope within the protected area, as mentioned in Olufsen, *Unknown Pamirs*, p. 187, nor of irrigation channels. To bring water to the slope below the citadel would scarcely have been possible without extensive blasting.

[20] Cf. *Serindia*, i. p. 75.

[21] These materials have been published by Sir George Grierson in *Ishkāshmī, Zēbakī and Yazghulāmī*, R.A.S. Prize Publication Fund, 1920.

crossed by a bridge. The cleft in which the glacier stream of Darshai has here cut its passage through the foot of a rocky spur is only a few feet wide at the top. Some circular holes, about 3 inches in diameter and cut with much skill, are seen in a rock above the eastern edge of the cleft. They are ascribed to 'Kāfirs' of old times and undoubtedly once served for rafters carrying an earlier bridge. A large boulder to the west of the cañon bears numerous coarse sgraffiti of ibex, markhōr, and other game, as well as of rude figures of hunters; their date is quite uncertain.

Cañon of Darshai stream.

On the top of an isolated rocky ridge reached over bare cliffs to the north of the bridge and at a height of 200 feet above it, there rise the ruins of dwellings, as shown in the sketch-plan, Pl. 48. They are known as the 'Kāfir fort' of Darshai and cover whatever level space is afforded by small terraces. The position is by nature an extremely strong one; for unscalable cliffs protect it from the side of the cañon on the west and from the north, while the bare rock slopes towards the south and south-east are easily defended from above. The walls of the dwellings, standing in places to a height of 6 or 7 feet, are built of water-worn stones set in mud plaster. Those of a larger structure occupying the highest terrace were of a more solid construction, being built of flat unhewn stones roughly set in courses, as seen in the walls of Zamr-i-ātish-parast. The walls of this highest structure still retain in parts a facing of hard plaster. This top terrace appears to have been connected by a wall with a rocky offshoot to the east, which on a level about 100 feet lower bears the much-decayed remains of a few small structures. No circumvallation was traceable elsewhere, nor was one needed to make the agglomeration of dwellings a safe temporary refuge. A narrow steep gully appears to have been used for access to water in the cleft below. All that can be safely asserted as regards the date of this 'Kāfir fort' is that its occupation probably goes back to pre-Muhammadan times, though it may possibly have continued on occasion into a later period.

Ruined dwellings above Darshai stream.

## Section II.—THROUGH ISHKĀSHM AND GHĀRĀN

Our march of September 6th was of interest since it carried us into that portion of the Āb-i-Panja valley which lies at the great northern bend of the river. Though, judged from a small-scale map, it might seem but the natural continuation of Wakhān, yet we shall presently see that in linguistic respect and also politically it may claim to be considered part of a small but distinct geographical division. Less than a mile below Darshai the river becomes confined to a narrow cañon-like bed, and the route above this on the right bank skirts the barren rocky slopes of a succession of defiles. Cultivation restricted to small detached patches comes to an end at the isolated homesteads of Ramanit and Udit, and the steep rocky spur of Sang, which we passed 3 miles beyond the latter, has been recognized since old times as the traditional boundary between Wakhān and Ishkāshm on the right bank. After crossing this spur, the road lay over a wide stony fan and then brought us to the village of Namadgut, situated amidst orchards and a fine expanse of cornfields. Though inhabited by Wakhīs, this pleasant place is reckoned as belonging to Ishkāshm.

Past border of Ishkāshm tract.

In a contribution to Sir George Grierson's analysis of the linguistic materials brought back by me from this portion of the Oxus valley I have pointed out that a close ethnic and political connexion has existed since early times between the Ishkāshm tract on the Āb-i-Panja and the valleys of Zēbak and Sanglīch on the upper Wardōj river. The same connexion is also reflected in a striking manner by the practical identity of the Galcha language spoken in all three mountain tracts. It results from well-defined geographical facts, and as these have a distinct interest of their own my remarks on them may conveniently be repeated here.[1] 'We have here an interesting

Connexion of Ishkāshm with Zēbak and Sanglīch.

[1] Cf. Grierson, *Ishkāshmī, Zēbakī and Yāzghulāmī*, pp. 4 sq. I quote my remarks with a few slight alterations in spelling and wording.

illustration of the observation well known to students of geography that defiles in valleys often form more important ethnic and political boundaries than watersheds, when these are crossed by relatively easy passes and routes.

Easy communication towards Wardōj drainage.

'As far as local tradition and scanty historical data allow us to go back, the tract comprising the upper Wardōj valley which drains into the Kokcha river of Badakhshān, and the tract of Ishkāshm, extending along the main Oxus where it makes its great bend northward, have always formed a separate small hill chiefship or canton, distinct from Badakhshān on the west and from Wakhān . . . on the east. The reason for the separation of the Zēbak-Ishkāshm tract is that, whereas the broad spur which descends from the Hindukush towards the Oxus at Ishkāshm and divides it from the Wardōj drainage is crossed by a remarkably easy saddle, there are in the river valleys both towards Badakhshān and Wakhān narrow defiles to be passed, which form serious barriers. The same is the case northward [in Ghārān]. . . .[2]

Ishkāshm a distinct chiefship.

'Ishkāshm-Zēbak as well as Wakhān were ruled as distinct chiefships usually by relatives of the Mīrs of Badakhshān, being held on a kind of feudal tenure from the far more important and powerful principality of Badakhshān. This time-honoured arrangement was duly noted by Marco Polo when he passed here about 1273–4, on his way to "Vokhān" and the "Pamier".[3] At present the Zēbak tract and the greatest portion of Ishkāshm, being south of the Oxus, are included in the Afghān province of Badakhshān. . . . Ishkāshm, on the right or northern bank of the Oxus, is reckoned to extend upwards to the rocky defiles above the village of Namadgut and downwards to the hamlet of Malwāch, where the gorges of Ghārān are entered.'

Ruined fortress below Namadgut.

My stay at Namadgut on September 7th and a portion of the following day was devoted to the survey of the ruined fortress situated about a mile and half below the central hamlet of Namadgut and known as Qala-i-Qa'qa. This name connecting the stronghold with the legendary hero Qa'qa of Arab tradition suffices to show that genuine local knowledge of its origin has been lost. It occupies an isolated rocky eminence rising above the right bank of the river and separated from the foot of the range to the north by an open plateau about half a mile wide, a continuation of the alluvial terrace of Namadgut. The eminence is formed by two ridges closely adjoining and both lying in an approximately east to west direction, as seen in the sketch-plan, Pl. 49. The northern and larger one rises at its eastern extremity to a height of about 400 feet above the river and about 225 feet above the plateau at its foot. Buttressed there by very precipitous cliffs the ridge gradually descends westwards, falling off steeply on its northern side, while the southern side shows a succession of terraces (Fig. 412). The total extent of this ridge is a little less than half a mile.

Natural strength of position.

The southern ridge, seen in Fig. 412, is shorter than the other but of more uniform steepness. It is separated from the northern one by a trough-like depression, and at its western extremity projects somewhat beyond it with rocks forming a kind of natural ravelin. The narrow top of this ridge attains a height of some 350 feet above the river. The descent to the latter from the narrow terraces which line the foot of both ridges (Fig. 414) is very precipitous throughout and in many places rendered impracticable by sheer-faced rocks. The whole eminence is protected by steep cliffs along the greater part of its perimeter and on one side of this by the deep fosse of the river, here unfordable at all seasons. It thus forms a position very strong by nature; in the days before the invention of fire-arms it might, if adequately defended, have well appeared unassailable. The care and labour bestowed on its defences by human hands show how much these advantages were appreciated.

[2] See below, ii. pp. 876 sq.

[3] See Yule, *Marco Polo*, i. pp. 170 sqq. Cf. also *Serindia*, i. p. 65.

Outer enceinte at E. end.

In describing these defences[4] it will be convenient first to follow those which form the outer enceinte. Starting from the height at the eastern end of the main ridge, i, we find the edges of its rocky plateau-like top bounded by a brick wall in close proximity to the cliffs with which the ridge falls off to the plains both on the east and north. Owing to the strength of the natural defence provided by precipitous rock slopes, over 200 feet in height at this end, the wall here was only 3 to 3½ feet thick and has suffered much decay. It is built of sun-dried bricks of an average size, as in most portions of the outer enceinte, of 14 to 15 inches by 10 to 11, with a thickness of 3½ to 4 inches. The wall and the towers both round and square, with which it was strengthened at irregular intervals, had their brickwork raised on low stone foundations. The loopholes, of which nowhere was more than one row here traceable in the surviving brick masonry, were usually placed close above the stone foundations. Their height varied, being up to 3′ 3″ inside and decreasing to about 2′ 3″ outside. Their width narrowed towards the outside to 7 or 8 inches. A peculiar feature traceable along the eastern and northern portions of this circumvallation was a second wall, running parallel to the outer one and at a distance of 6 feet from it. It had a thickness of only 1½–2 feet and had decayed badly. No loopholes could be found in it. An exactly corresponding arrangement had been observed at the main circumvallation of Zamr-i-ātish-parast.[5] Its exact purpose remains doubtful.

N. face of outer enceinte.

On the northern face the general height of the main ridge gradually decreases towards the west. But the cliffs towards the plateau outside are very steep and about the middle of this face still rise to a height of about 60 feet. Where the elevation of the ridge lessens the place of the comparatively weak wall with towers crowning the rock wall is taken by a remarkably solid rampart built of sun-dried bricks outside and apparently of stamped clay within. Erosion has scored it with numerous fissures descending towards the interior. But the outer face still presents a strikingly solid front except at the two breaks marked ii in the sketch-plan (Pl. 49). This rampart is about 16 feet across near ii, and gradually increases to a thickness of about 33 feet towards the NW. corner, guarded by a massive circular tower, iii (Fig. 411). Its height above the wall of live rock outside is about 25 feet on the average. The parapet which, no doubt, it carried is no longer traceable; nor could the position of any towers be made out.

Construction of enceinte wall.

At the NW. corner, iii, the rampart turns to the SSW. and crosses the gap between the two ridges (Fig. 411). Its thickness here is about 22 feet at the top except between the two square bastions, iv, shown in the sketch-plan (Pl. 49), where it is reduced to about 12 feet. The bastions built on massive stone foundations project about 20 feet beyond the curtains on either side and may possibly have been intended to protect a gate or postern between them; decay of the wall, however, no longer permits one to distinguish this. Close examination at this point showed that the bastions and the curtains both on the inside and on the outside were faced with solid masonry in bricks, 16″×9″×4″, while the interior space was filled with layers of stamped clay divided at irregular intervals of 6 to 10 inches by thin strata of brushwood. The same method of construction, resembling that described in the forts of Kansir and Kiz-kurghān,[6] was noticed also elsewhere at Qala-i-Qa'qa. The use of this method, unknown locally at the present time but widely applied in early structures of Chinese Turkestān, appears to me a clear indication that the fortress was of considerable antiquity. In a few places it was also possible to make out layers of rubble near the top of the rampart covered with bundles of brushwood 8 to 10 inches thick.

The curtain closing the gap ascends south to the foot of the precipitous rocks which form the

[4] A very sketchy description of these defences is given in Olufsen, *Unknown Pamirs*, pp. 187 sqq. It would serve no useful end to note inaccuracies of detail or conjectures unsupported by critical evidence.

[5] See above, ii. p. 867.

[6] Cf. *Serindia*, i. pp. 69, 75.

Decorated wall section below citadel.

western extremity of the smaller or citadel ridge. These carry a ravelin-like outwork built of very massive brickwork. The wall here cannot be traced over the cliffs, but the point of junction is adequately guarded by the large circular tower, v, which rises near the gorge of the outwork. At the same point abuts the massive wall, over 10 feet at the base, which joins the citadel with the outwork and forms part of an inner line of defence to be presently described. From the eastern end of the outwork the wall of the enceinte descends towards the river to the south-east. In order to secure more easily a footing for it on the steep slope and also to facilitate defence, the wall is carried along a line with several projecting angles. The largest of these is guarded by two square towers, and below these a portion of the wall facing south, at vi, shows a bold and effective decoration in brickwork (Fig. 413). It comprises a band, about 18 inches high, of four courses of bricks placed diagonally in such a way that between their projecting points re-entering angles are formed, producing a striking light-and-shade effect. Above this band follow three plain courses of bricks, and these are surmounted at intervals by horseshoe-shaped niches, each divided into nine compartments by bricks placed on edge and radiating from a triangle. Here, too, a light-and-shade effect is aimed at. I must leave it to others to determine any chronological indication which may possibly be derived from this scheme of decoration vaguely suggestive of Orientalized Hellenistic influence.

Enceinte wall descending to river.

Farther down, the wall, here much broken, descends to a group of three towers, vii (Fig. 404). They appear to have guarded a gate through which a path still in use passes to terraces above the river bank. The outlying tower to the south, more than 25 feet in height at the present day, is built of stones and faced with brickwork and plaster. It may have served the additional purpose of watching the approach along the river bank from below. Over the very rocky ground to the east of viii the enceinte wall is no longer traceable. But it appears again much broken where it draws near the river on a small knoll. From this point the remains of two parallel walls can be traced leading down over the steep cliffs immediately above the river-bed; they probably belong to a covered way which prevented access by its bank.

River front of enceinte.

There is good reason to suppose that the wall extended originally all along the river front of the circumvallation up to the traverse wall ascending from the tower at point marked ix (Fig. 414). But except for a broken stretch, about 120 yards long, with three towers still *in situ*, and another tower now detached farther up, this portion of the enceinte can no longer be traced. This is accounted for by the extremely precipitous nature of the rock-lined river bank, rising at viii about 50 feet above the water-level at the time of my visit, and the increasing narrowness of the pathway left above the line of the wall. At the tower ix seen in Fig. 414 on the left, the outer wall leaves the river bank, and in a much broken condition ascends over steep cliffs to a terrace of the main ridge about 100 feet higher. Along the edge of this terrace it continues eastwards to the massive circular tower, x, shown in Fig. 407. For the last 30 yards or so before reaching this tower, the enceinte is accompanied by an inner wall, only about 2 feet thick and keeping here at a distance of about 10 feet from the former. Immediately behind this tower x the main wall takes a northward turn, leaving a gap which obviously marks the position of a gate. In this tower x the loopholes are particularly well preserved. As seen in Fig. 407, the top of the loopholes on their narrow outer side is decorated with a triangular niche in which projecting bricks produce a stepped effect. The wall continues above the gate on the steep slope until it meets the almost vertical rock wall below the highest portion of the main ridge. On the cliffs it cannot be traced; but above them the line is continued at an elevation of about 400 feet above the river, and here we are brought back to the point where our survey of the enceinte had started.

We may turn back from here towards the second and smaller ridge. Before we can approach the citadel crowning its long and narrow top (Fig. 412), we pass along the edge of the terrace,



405. TOWER ON SECOND LINE OF WALL, SOUTH FACE, ZAMR-I-ĀTISH-PARAST.



406. CITADEL OF ZAMR-I-ĀTISH-PARAST, SEEN FROM NORTH ACROSS RAVINE.



407. TOWER, X, ON EAST FACE OF CIRCUMVALLATION, QALA-I-QA'QA.



408. OUTWORK ON WEST FACE OF CIRCUMVALLATION, ZAMR-I-ĀTISH-PARAST.



409. FORT OF ZULKHOMĀR, ZAMR-I-ĀTISH-PARAST, SEEN FROM SOUTH.



410. RAVELIN WITH TOWER AT NORTH END OF CITADEL, ZAMR-I-ĀTISH-PARAST.



411. RAMPART AND TOWERS ON NORTH-WEST FACE OF QALA-I-QA'QA.



412. SOUTHERN RIDGE OF QALA-I-QA'QA, SEEN FROM EAST.



413. DECORATED WALL ON SOUTH-EAST FACE OF CIRCUMVALLATION, QALA-I-QA'QA.



414. RUINED TOWERS AND WALL ON RIVER FRONT, QALA-I-QA'QA.

situated about 150 feet above the river, on which the enceinte wall stretching south-west from the tower and gate of x has already been noted. From where this wall descends to the river the terrace continues westwards above steep cliffs. No remains of fortification were traced here. Yet it can be safely assumed that along this line there once extended a secondary line of wall connecting with the wall which the sketch-plan (Pl. 49) shows at xi running in the same direction. A portion of this is seen in the left-hand bottom corner of Fig. 412. This secondary line of wall would permit the main circumvallation to be defended even if the river section extending from viii to ix were taken or abandoned.

Secondary line of wall above river front.

From the corner marked xii the secondary wall turns at right angles to the NW. and ascends steeply over a narrow rocky crest to the citadel. It is very solidly built of bricks 18″ × 14″ × 3½″ and stands for the most part to a height of 8 to 10 feet. The three round towers guarding this connecting wall section have their entrances from the slope to the south of the citadel. The reason for this arrangement becomes clear when we notice the broken segments of a wall which stretches up from the tower viii by the river to the corner xii. With the help of this traverse wall and the one reaching up to the citadel the walled area between the citadel and the river could be held even after the major part of the circumvallation including the main ridge were lost. It is with the same object that a line of wall with towers facing north was extended from the westernmost point of the citadel to the tower v at the gorge of the ravelin-like outwork of the enceinte.

Wall ascending to citadel.

The walls of the citadel adapted to the contours of the ridge enclose an area on the top about 150 yards long and 40 yards across where widest. On the highest knoll, about 350 feet above the river, rise the walls of a small structure, xiv, comprising a hall measuring 28 feet by 19 and another apartment, 19 feet by 11. They are 3 feet thick and built of carefully set masonry of bricks, 13–14″ × 10″ × 3½″. Another small structure, with much broken walls, occupies a slightly lower knoll at the eastern end of the citadel. By the side of a tower, xv, on the river face of the citadel enclosure a gate passage could be traced. It was mainly within the citadel and on the adjoining slopes to the south that we were able to find some pottery debris. Among this were numerous pieces of a very fine red clay, greatly superior in their technique to the potsherds found at the sites of Zang and Yamchin. No fragments of decorated pottery were seen. From the distribution of these ceramic remains it may be concluded that the citadel was probably occupied at certain periods more or less permanently, while the rest of the circumvallation was intended merely to serve as a temporary place of refuge. The total absence of any ruins of dwellings within the latter is a noteworthy feature. The people of Namadgut did not admit having found any ancient objects within the walls, with the exception of an iron arrow-head subsequently shown to me by Captain Tumanovich at Nut. It had a peculiar two-pronged point, like the blades of an open pair of scissors.

Walls and interior of citadel.

The observations recorded in the previous section of this chapter with regard to Zamr-i-ātish-parast apply with the same, if not with increased, force to the origin and age of Qala-i-Qa'qa. It seems very difficult to believe that fortifications of such extent and solidity could have been constructed by a chief commanding only resources so limited as those of the present tract of Ishkāshm and Zēbak. That they were designed chiefly, if not solely, for the purpose of assuring safety in times of danger for a large number of men is clear. Considering the exceptional advantages offered by the natural strength of the position and the comparatively easy access to it from the side of Badakhshān, the question suggests itself whether it was possibly some ruler of that fertile and once populous territory with which the tracts between the Oxus and the head-waters of the Wardōj were always closely linked in political fortunes, who wished to secure, here in the east, a safe retreat for himself and his host in the case of invasion. There are no definite archaeological indications at present which would permit us to fix the period of construction with any certainty. But it could

Purpose and period of stronghold.

not be very far removed from that of the fortress above Yamchin, and on the strength of some of the structural features noted I should be inclined to assume a somewhat earlier date for the 'Castle of Qa'qa'.

Traces of Buddhist worship.

By the morning of September 8th the survey of the old stronghold was completed and a visit paid to the much-frequented Ziārat of Hazrat Shāh-i-mardān, which lies close outside its northern front. I have previously had occasion to mention the series of natural stone blocks placed there, which by their shape curiously resemble miniature Stūpas, and to point out their significance as probable proofs of lingering respect for what in Buddhist times would certainly have been objects of worship.[7] On the march down to Nut, the Russian military post facing Ishkāshm, I noticed between the villages of Kazi-deh and Run a wide 'Dasht' where traces of ancient cultivation were said to be visible and which was being reclaimed by means of new canals. Below the village of Putur a steep spur descending to the left bank of the river was pointed out as the traditional boundary on that side between Wakhān and Ishkāshm.

Halt at Nūt.

At Nut I was most kindly received by its cultured commandant Captain Tumanovich, and was able to utilize a day's halt in collecting more linguistic and anthropometrical materials concerning the population of Ishkāshm (Fig. 441). The high position of the Nut post, about 8,400 feet, and some 400 feet above the river, near where abundant springs issue from the hill-side, afforded a fine view over the wide open valley on the opposite side of the Oxus (Fig. 400). There the cultivated terraces, among which the numerous hamlets collectively known as Ishkāshm are scattered, seemed to extend close up to the remarkably easy saddle or rather plateau which gives access to Zēbak and the valley of the Wardōj river draining into Badakhshān. It was easy to visualize, as it were, the reasons that have linked Ishkāshm so closely in language with the hill tracts across that saddle and made the whole of them an apanage of the great territory westwards, the old Tukhāra country. To me it was a satisfaction, though at the same time a tantalizing one, to have seen at least from a distance the mountains of Tokhāristān.

Fort above Sumjin.

On September 10th I started from Nut for the journey down the Oxus to Shughnān. Where the river makes its turn to the north within a couple of miles from Nut, its valley contracts greatly. Yet stony plateaus on the right bank leave a comparatively easy passage down to the hamlet of Malwāch, about 12 miles from Nut, and this explains why the dozen or so of homesteads found on this bank as far as Malwāch are reckoned as belonging to Ishkāshm. At a distance of about 7 miles from Nut and close above the hamlet of Sumjin a bold rocky spur projects from the east into the bottom of the valley. Its end, about 500 feet above the river, carries a small fairly level plateau which towards the river bending round its foot falls off with almost sheer precipices. The top is occupied by a roughly polygonal enclosure (see sketch-plan in Pl. 46) of walls built of rough stone slabs, practically without any plaster. In a few places loopholes about 1½ feet high survive in the decayed masonry. Nothing is known to local tradition about the origin of this 'Qala of Sumjin', but there can be little doubt that it is distinctly later than the strongholds near Yamchin and Namadgut. It may have been rapidly constructed as a 'chiusa' to defend the route from Ghārān perhaps against a Shughnī invasion.

Difficult route through Ghārān.

At Malwāch hamlet we entered the succession of narrow defiles through which the Oxus, locally known as Panj, makes its tortuous way down to Shughnān. This portion of the Oxus valley, constituting the tract of Ghārān, was most difficult of access both from the south and north before Russian engineers had constructed a narrow bridle-path. Many of the precipitous spurs which descend to the right bank of the river were until then quite impracticable for animal transport.[8]

[7] Cf. *Serindia*, iii. p. 1303.

[8] For a graphic description of these difficulties before the road was made, see Olufsen, *Unknown Pamirs*, pp. 33 sqq.

The obstacles here presented by nature to communication along the river adequately explain the close dependence of Ghārān upon Badakhshān, which is indicated both by local tradition and by the physical appearance and Persian speech of the people. The very scanty population which Ghārān could maintain on such limited patches of cultivable land as are to be found mainly at the mouths of narrow side valleys,[9] was governed by the Mīrs of Badakhshān until the Afghān annexation in the time of Amīr Shēr 'Alī.

Easy access to Badakhshān.

Communication with Badakhshān is made comparatively easy for a great part of the year by the fact that side valleys descending to the left bank both at Barshōr and Andāj give access to the Yaghurda plateau on the watershed towards the Wardōj. Across this, paths practicable for laden animals during the summer and autumn lead to the Sarghilān valley and thus to Bahārak, the old capital of Badakhshān, in a couple of marches. A route of similarly easy nature ascends the side valley in which the Shiwa lake finds its outlet to the Oxus opposite Darmārak, and from the rich pastures surrounding the lake leads over the Arghancha pass to Faizābād, the present chief town of Badakhshān. The descriptions I heard of these fine pastures to be found on the range which overlooks from the west the Ghārān and Shughnān portions of the Oxus valley made it easy for me to realize the attractions that they must have offered during successive periods to such originally nomadic rulers of Badakhshān as the Yüeh-chih, White Huns, and Western Turks.[10]

Ruby mines of Ghārān.

No detailed account need be attempted here of the three marches which carried me through the whole length of Ghārān to Shughnān. The difficulties that the ground here presented before the bridle-path was made have been fully described by Captain Olufsen.[11] They could be appreciated at the many points where the new roadway has been blasted from the rocks or carried on galleries (*rafak*) high above the river along otherwise impracticable cliffs. One of these was encountered close below the hamlet of Barshōr (Fig. 415), where we halted for the night of September 11th at an elevation of about 7,600 feet. It was on the second march, which brought us to Andarāb, that I first noticed, from the hamlet of Vodhgh downwards, cultivation high up on the slopes carried on by rain and snow-fall only, evidence of a climate distinctly moister than that of Wakhān. On the way to Andarāb we passed the pits situated above the hamlet of Sīst where rubies, or spinels resembling them, used to be mined by forced labour under the rule of the Mīrs of Badakhshān. The fame of their produce was far-spread in the Middle Ages, and Marco Polo does not fail to mention 'those fine and valuable gems the Balas Rubies' and correctly to indicate their place of origin.[12]

## Section III.—IN THE VALLEYS OF SHUGHNĀN

Arrival at Khāruk.

It was below Andarāb, at about 7,200 feet above the sea, our last stage before entering Shughnān, that the worst of the obstacles to communication along the Panj were encountered. In consequence of these impediments, such local traffic as there was before the opening of the

[9] The population of Ghārān in the years immediately following the Russian occupation, according to Olufsen, *Unknown Pamirs*, pp. 56 sq., was reckoned at about 60 households on the right bank of the river. Since then it has undoubtedly increased on the Russian side, but could scarcely exceed a hundred homesteads at the time of my passage.

[10] The delights of those highlands are most happily reflected in Marco Polo's recollection of the convalescence he found there after illness; cf. Yule, *Marco Polo*, i. pp. 158 sqq.

[11] See Olufsen, *Unknown Pamirs*, pp. 34 sqq. For an adequate geographical account of the Oxus valley below Nut, see Schultz, *Forschungen im Pamir*, pp. 147 sqq.

[12] 'It is in this province [of Badascian] that those fine and valuable gems the Balas Rubies are found. They are got in certain rocks among the mountains, and in the search for them the people dig great caves underground, just as is done by miners for silver. There is but one special mountain which produces them, and it is called *Syghinan*. The stones are dug on the king's account, and no one else dares dig in that mountain on pain of forfeiture of life as well as goods; nor may any one carry the stones out of the kingdom', &c. (Yule, *Marco Polo*, i. pp. 157, 161 sq.).

Russian road used a track, practicable for animals, leading up the side valley of Garm-chashma which joins in here, and then crossed the range to the SE. into Shākh-dara of Shughnān. At the little village of Darmārak, within view of the outflow from the Shiwa Lake, there were orchards of fruit-trees to signal approach to a more favourable climate, and after one of the worst bits of the route had been passed under the overhanging cliffs of Khitshīf, the rich cultivation terraces of Kala Bar-Panja, the chief place on the Afghān side of Shughnān, came into view in the widening valley. Finally, turning into the open valley through which the considerable river uniting the streams of Ghund and Shākh-dara carries its water to the Oxus, and crossing to its right bank, we reached Khāruk (about 6,650 feet above sea-level), the administrative head-quarters of the Russian 'Pamir Division'.

Help of Colonel Jagello.

The two days' halt here, on September 13–14th, was made pleasant and profitable by the very kind and helpful reception accorded to me by Colonel Jagello, commanding the Division. The friendly interest shown by this highly accomplished officer, at one time on the Intelligence Staff of the Turkestān Army, in the antiquarian and other objects of my journey made it possible for me to extend my visit to Shughnān farther than I had originally expected. He also greatly facilitated my passage through the hill territories, then under the rule of the Amīr of Bukhāra, by the instructions he issued. Of all this prompt and most effective help I wish to record here my very grateful remembrance.

Chinese notices of Shughnān.

My stay at Khāruk, where civilizing Russian influence manifested itself not merely in extended cultivation and flourishing orchards but also in electric lighting and a well-frequented Russian school, enabled me to collect not only anthropometrical records, but useful information about the past of Shughnān and the ways of its present population. It will be convenient to note this in connexion with the earliest historical data that Chinese records have preserved for us concerning this interesting mountain territory. It has long ago been recognized that the territory which the *T'ang shu* and the narratives of several Chinese Buddhist pilgrims mention under the slightly varying names of *Shih-ch'ih-ni*, *Shih-ni*, *Sê-ni*, &c., is Shughnān.[1] This identification is clearly proved by the position as assigned to the territory by the several records, quite apart from the similarity of the above names to *Shighnān*, a still current variant to the locally prevalent form *Shughnān*.

T'ang Annals' record of *Shih-ni*.

In the T'ang Annals we are told:[2] '[The country of] *Shih-ni* 識匿 is called also *Shih-ch'ih-ni* 尸棄尼 or *Sê-ni* 瑟匿; to the south-east, it is 9,000 *li* in a straight line to the capital; to the east, at 500 *li*, it is limited by the territory of the military post of Ts'ung-ling (Sarīkol); at 300 *li* to the south, it touches *Hu-mi* (Wakhān); at 500 *li* to the north-west one reaches *Chü-mi* (Karategīn). At first, the town of *K'u-han* 苦汗 was the capital; afterwards the people lived dispersed in the mountain gorges; there are five chief gorges the chiefs of which carry on autonomous rule; one calls them "the five *Shih-ni*". The territory comprises 2,000 *li*; it does not produce the five kinds of cereals; the inhabitants like fighting each other; they stop and plunder the traders. In the four gorges of the *Po-mi* (Pāmīr) valley the natives do not conform to the imperial orders. They are accustomed to live in caves.' Farther on an embassy from this territory to the Imperial court in A. D. 646 is recorded, and also the grant of an Imperial office to its king in 724. Mention is made also of the aid given by a king of Shih-ni, who in A. D. 747 accompanied Kao Hsien-chih's expedition against Little P'o-lü (Yāsīn) and died in the fighting.[3]

Character ascribed to Shughnān people.

It requires no detailed demonstration to show that the bearings given of the neighbouring territories are quite correct, and approximately also the distances recorded. Where the old capital *K'u-han* is to be located it is impossible to say in the absence of any definite indication as to its

[1] Cf. Yule, *J. R. A. S.*, 1873, p. 113, referring to General Cunningham.

[2] See Chavannes, *Turcs occid.*, pp. 162 sq.

[3] Cf. *Serindia*, i. pp. 53 sqq.

position. The use of the designation of the ' Five Shih-nis ', with which we meet also in Wu-k'ung's narrative, is accounted for by the division of the territory into five valleys with distinct chiefships, and accords with a traditional notion to be presently mentioned. The reference to the warlike and marauding propensities of the people is perfectly borne out by the reputation the Shughnīs have enjoyed down to very recent times. Their raids are still a subject of lively recollection among the people of Wakhān, and there can be little doubt that the present occupation of Sarīkol by a population speaking a language differing but very slightly from Shughnī is the result of conquest from the side of Shughnān.[4] Both raids and outside settlement must largely be attributed to the very limited extent of arable land in the narrow valleys of Shughnān and the absence of adequate grazing grounds. To this cause is due the migratory tendency and spirit of enterprise that the Shughnīs undoubtedly display at the present time. Driven forth by the poverty of their homeland, Shughnīs proceed annually in numbers to Farghāna for temporary work as farm labourers, while plenty of others seek employment as servants both at Kābul and at large centres like Margilān and Kōkand in the north. Coming from Wakhān with its rather ' tame ' submissive population, I was particularly struck by the independent and versatile ways of the average Shughnī.

Division into autonomous chiefships.

The division of the territory into five separate autonomous chiefships, which the T'ang Annals specially mention, is a direct result of its geographical configuration. Instead of being confined to a single main valley like that of the Āb-i-Panja in Wakhān, the population of Shughnān lives in a series of different tracts, each having a distinct character of its own and separated from the rest by high mountains or the equally effective barriers of difficult river defiles. A look at the map shows clearly enough four such natural divisions : the valleys of Ghund and Shākh-dara, the valley of the Panj or Oxus from below Ghārān to the border of Rōshān above Kala-i-Wāmar, and Rōshān itself. The last appears always to have been closely linked politically with Shughnān proper, and the language spoken there is a dialect but slightly differing from Shughnī. If we assume that the land on either side of the Oxus was counted as a separate tract, which would be natural enough in view of the difficulties presented by the river crossing, we arrive at the five distinct chiefships. Else possibly Ghārān may have been included in the reckoning recorded by the Annals.

Traditional reckoning of seven tracts.

From inquiries which subsequently were greatly furthered by Tūrān Bēg, a very intelligent nonagenarian of Shākh-dara and a fountain-head of local information, I ascertained that the use of a closely corresponding traditional designation of Shughnān as *Haft ṣadhā-i-Shughnān* was still current. Local opinion was not quite agreed as to the tracts exactly counted among these seven ' Ṣads ', but generally favoured the inclusion of Darmārak, Kala-i-Bar-Panja, Parshenīw,[5] Khāruk,[6] Shākh-dara, Ghund, Rōshān. There was, however, consensus as to the fact that until the early part of the last century Ghund, Shākh-dara, and Rōshān were ruled by separate Mīrs acknowledging but a nominal subordination to the Mīrs of Shughnān, whose residence was at Kala-i-Bar-Panja.[7] A somewhat similar state of things is likely to have prevailed in the seventh–eighth centuries A. D., from which the record in the T'ang Annals dates.

[4] I was unable to trace definite traditional knowledge as to the date of this settlement of Shughnīs in Sarīkol. It is supposed to have taken place ' a very long time ago '. Yet, according to what I learned in Shākh-dara, relations of kinship are still maintained between certain families living there and others settled in Sarīkol.

[5] Parshenīw is the chief village of the fertile tract along the right bank of the Oxus below Khāruk.

[6] This is the Persian form of the name given to the valley below the confluence of the streams of Ghund and Shākh-dara. The Shughnī pronunciation of the name sounded *Kharagh*. The officially adopted Russian spelling is *Khorok*.

The village of Khāruk, unimportant before it became the seat of the Russian military and ' political ' authority, was at the time of my visit said to include 60 homesteads. It also boasted of several shops kept by Shughnīs and a couple of Bajaurī traders.

[7] According to Tūrān Bēg, tradition remembers five ' Mīrs of Shughnān ', succeeding to each other in direct descent : Shāh Wanjī, Shāh Amīr Bēg, Kōbād Khān, Abdur-

Hsüan-tsang's description of *Shih-ch'ih-ni*.

Hsüan-tsang's account of Shughnān closely agrees with this record.[8] The pilgrim describes the territory in connexion with his passage through Wakhān, but did not personally visit it. He tells us that 'after crossing the high mountains of that kingdom [of Ta-mo-hsi-t'ieh-ti] one arrives to the north in the kingdom of *Shih-ch'ih-ni* 尸棄尼. It is about 2,000 *li* in circuit, its capital 5 or 6 *li* in circumference. It comprises a succession of mountain ranges and valleys, and of plains covered with sand and stones. There is plenty of pulse and wheat, but little of other crops. Trees are rare, and there are few flowers and fruits. The climate is very cold. The people are fierce and intrepid. They murder in cold blood and are given to theft and pillage. They do not recognize social duties and cannot distinguish right from wrong. They do not know misery and happiness of the future and fear the misfortunes of the present. Their appearance is coarse; they wear skins and woollen stuffs. The characters of their writing resemble those of the Tu-hu-lo (Tokhāra) country, but their spoken language is different.'

Later Chinese references, A. D. 741, 747.

The description here given reflects the physical features of the country correctly enough. The account of its people obviously agrees with the reputation for both bravery and violence that they still enjoy among their meeker neighbours to the south and west. Notwithstanding the troublesome character of the people, Shughnān is likely to have seen some of the traffic passing between Badakhshān and the Tārīm basin during the periods when Chinese political control extended across the Pāmīrs. This may account for the references to the route through Shughnān that are contained in the itineraries of two later Buddhist travellers to and from India. Thus we learn of the Indian monk Dharmacandra having travelled in A. D. 741, on his way back to his native country, from Kāshgar to the kingdom of *Shih-ni* 式匿. But as on arrival at the fortified town of *Chi-lien* 吉連 on Mount *Fa-lo* 乏騾 he found the country disturbed by an insurrection, he turned back to Kāshgar to die in the end at Khotan.[9] No safe location can be suggested at present for the town and mountain here mentioned. That Kao Hsien-chih's great expedition of 747 across the Pāmīrs extended to the 'valley of '*T'ê-lei-man* 特勒滿, which is the same as the kingdom of the five *Shih-ni* 識匿', I have had occasion to mention before.[9a]

Wu-k'ung's visits to Shughnān.

Wu-k'ung passed twice through Shughnān, both on his way from Kāshgar to India in A. D. 752 and on his return some time towards A. D. 786. But, laconic as always, the pilgrim contents himself in his narrative with the mere mention of the kingdom of 'the five *Ch'ih-ni* 赤尼 also called *Shih-ni* 式尼 of the valley of *Po-mi* 播密 (Pāmīr)'. On his way out he reached it across the Onion Mountains and the passes of *Yang-yü* 楊與, i. e. through Sarīkol and one of the passes thence giving access to the Pāmīrs, and then proceeded to *Hu-mi* or Wakhān.[10] On his return journey coming from Tokhāristān he passed, among many difficulties and dangers, through the kingdoms of *Chü-mi-chih* 拘密支 and *Ni-sê-chih* 惹瑟知, of which the former is identical with Karategīn and the latter uncertain, before arriving in Shih-ni. This route probably took him through Darwāz and up the Oxus. From Shih-ni he then gained Kāshgar.[11]

Tradition of Chinese control.

What references to Shughnān may be found in medieval Muhammadan geographers' works I am not able to trace at present.[11a] But it is certain that after the reconquest of the 'New Dominion'

rahīm Khān, Yūsūf 'Alī Khān. Kōbād Khān conquered Rōshān and placed there a younger brother as governor; Abdurrahīm Khān killed Mīr Atam Bēg of Shākh-dara with his six brothers and took his tract, as he did some years later with Ghund. Yūsūf 'Alī Khān was removed to Kābul at the time of the Afghān conquest and died there.

[8] See Julien, *Mémoires*, ii. pp. 205 sq. Slight modifications have been introduced into the above rendering from the paraphrase in Watters, *Yuan Chwang*, ii. pp. 281 sq.

[9] See Chavannes, *Turcs occid.*, pp. 163 sq., note 4. For a conjecture, cf. below, ii. p. 882, note 17.

[9a] Cf. *Serindia*, i. pp. 53 sq.; Chavannes, *Turcs occid.*, p. 152, note. M. Chavannes, *ibid.*, p. 369, suggests that *T'ê-lei-man* may perhaps have to be interpreted as meaning 'the valley of the Tegin (prince) *Man*'.

[10] Cf. S. Lévi-Chavannes, 'L'Itinéraire d'Ou-k'ong', *J. As.*, 1895, Sept.–Oct., pp. 346 sq.

[11] Cf. *ibid.*, p. 362.

[11a] For some notices, cf. Marquart, *Ērān-šahr*, pp. 202, 223.

in the second half of the eighteenth century Chinese political power made itself felt in Shughnān, just as it did beyond the Oxus valley, too, in Badakhshān and Chitrāl.[12] A local tradition of Chinese control still survives and, as communicated to me by Tūrān Bēg of Shākh-dara, seems to connect it with the Chinese advance across the Pāmīrs which took place in 1759 after the occupation of Kāshgar.[13]

Racial type of people.

This extension of Chinese political influence to Shughnān and even beyond it may confidently be recognized as a result of the comparative facilities of access that the valleys of Shughnān afford, both from the side of the Pāmīrs and from the open plateaus of Badakhshān. The same geographical factor, together with the Shughnī people's proneness to supplement the scanty resources of their own country by seeking profit outside it, may probably help to explain the admixture of foreign racial elements with the original *Homo Alpinus* type of the population (Fig. 442) which is clearly indicated by Mr. Joyce's analysis of the anthropometrical materials secured on my passage through Shughnān.[14]

Estimates of population.

In this connexion I may note that tradition puts the former population of the whole of Shughnān at the high figure of 7,000 households. There can be little doubt that this estimate is greatly exaggerated. Nevertheless I found clear evidence that a great deal of arable land, particularly in the upper portion of the Shākh-dara valley, had gone out of cultivation since an earlier period. Whether this was due to the effects of prolonged maladministration under local Afghān and Bokharan rule, to the slave-trading practices of the last local Mīrs, or possibly to the recently increased facilities for emigration I was not able to ascertain. According to the information uniformly supplied to me, the three tracts of Shākh-dara, Ghund, and Khāruk, visited by me on the Russian side of Shughnān, were reckoned to contain 210, 220, and 60 households, respectively. To this figure a considerable addition would, no doubt, have to be made for the tracts stretching along both banks of the Oxus from below the Ghund debouchure to above Kala-i-Wāmar.

Journey up Shākh-dara.

On September 15th I left Khāruk in order to ascend the valley of Shākh-dara to its head.[15] The march of that day led along a bridle-path following the right bank of the stream and passing a number of picturesque hamlets separated by stretches of grazing grounds. The valley bottom allowed of easy progress throughout and widened to fully half a mile at the village fort of Rāch-kala (about 8,400 feet), once the seat of the Mīrs of Shākh-dara,[16] where we halted. The second march brought us, after we had proceeded about 8 miles, to the point above the hamlet of Beze<u>ts</u> where the bottom of the valley turned into a belt of luxuriant riverine tree growth. From the debouchure of the large glacier stream of Bāzun-dara, which we next passed, a difficult route, often used in the old raiding times, leads to Shitkarw in Wakhān. Beyond that we reached a point near the mouth of the Zanōch-dara where the river is hemmed in between wall-like cliffs, and the passage through the defile obstructed by huge masses of fallen rock. The 'Darband' thus formed was defended by two towers.

Ruins at *Bidēch*.

About two miles farther this defile widens into a basin broken by small rocky ridges. Here at the grazing ground of Bidēch, a terrace rising about 80 feet above the riverine jungle is covered over an area of about 150 yards by 120 with massive walls of ruined dwellings (Fig. 417), to which tradition ascribes 'Kāfir' origin. The masonry of flat unhewn stones set in mud plaster shows considerable solidity and is certainly superior to any seen by me in Shughnī buildings. The walls,

[12] See *Serindia*, i. p. 33.

[13] Cf. above, ii. pp. 857 sq.; also below, p. 883.

[14] See Mr. Joyce's Appendix C.

[15] For a detailed description of Shākh-dara, see Schultz, *Forschungen im Pamir*, pp. 129 sqq.

[16] Of the family of these Mīrs of Shākh-dara Tūrān Bēg remembered six generations: Daulat Bēg, Hassan Bēg, Atam Bēg, Nādir Shāh, Obaidullah Khān, Azīz Khān (the Ming-bāshi of the valley at the time). Atam Bēg, the last independent Mīr, was surprised at Rāch-kala by Mīr Abdur-rahīm, and with his six brothers killed by being thrown over the precipice below the fort.

usually about 2 feet thick, still rise in places to over 12 feet in height. A dwelling at the SE. end contained several large rooms, one measuring 25 feet by 23. About a mile farther up a detached rock, about 60 feet high and known as Barīkak, on the opposite bank of the river, carries scanty remains of walls which are also believed to go back to 'Kāfir' times. From here onwards the course of the river lies in a narrow cañon, and the path ascends on the left bank through a steep rock couloir to a plateau occupied by the fields of Sendīw (about 9,100 feet above the sea). Where this plateau falls off precipitously to the river there rises on its edge an isolated rocky knoll once occupied by the keep of a 'Kāfir' fort. Most of the walls had been pulled down to supply material for the large newly built house of the Ming-bāshi, but I could see the remnants of a wall running down from the knoll along a little ravine and probably meant to safeguard access to water.

'Kāfir' fort of *Sendīw*.

March to *Nemādh*.

It was about two miles beyond Sendīw that we encountered the first and only serious obstacle to traffic within Shākh-dara. Here a very steep descent of some 200 feet had to be made over 'Rafaks' down to the left bank of the river, making it necessary to unload ponies. Beyond the small village of Sēdj cultivation was repeatedly met with in small patches wherever the valley bottom widened. The road winds up and down steep slopes in places where the river has cut its way through narrow impracticable gorges. Yet we covered twenty-three miles without trouble before reaching that night's camp at the homesteads and Mazār of Nemādh (10,100 feet elevation).

Kirghiz cultivation at *Jaushangāz*.

Our march of September 18th was of distinct interest. It first led up the steadily widening valley, past a succession of small hamlets occupied mainly by immigrants from Rōshān, until after a march of about 11 miles we reached quite Pāmīr-like ground in the wide grassy trough of Jaushangāz (about 10,800 feet above sea). Here we found some ten Kirghiz families cultivating oat fields but still living in their felt tents or 'Kirghas'. They had taken up land here in recent years, but plenty more of it capable of cultivation could be seen extending for miles to the east. Oats and barley were said to grow well here, and everything pointed to this head of the main valley having been closely settled in earlier times. Shākh-dara tradition, as heard from old Tūrān Bēg, credited it in fact with having once supported three thousand Shughnī homesteads, an estimate greatly exaggerated, no doubt, yet significant. Sassik-kul on the Alichur Pāmīr can be reached from here by two easy marches along a route now followed by the Russian cart-road. Jaushangāz, therefore, when fully occupied, may well have once served as a halting-place and supply centre of importance for traders passing across the Pāmīrs to and from Shughnān.[17] A ruined fort on a small spur rising within the Jaushangāz trough (Fig. 418) was said to have been occupied by Shughnīs until some forty years before. Its masonry looked modern and distinctly inferior to that of the 'Kāfir' remains at Bidēch.

Crossing *Dōzakh-dara* pass.

From Jaushangāz we turned to the north in order to gain the Dōzakh-dara pass leading into the Ghund valley. Before reaching the valley which descends from the pass we skirted abandoned fields extending almost continuously for some four miles over terraces along the banks of the Khurwinek stream. Old canals could be traced clearly along the slopes. Heaps of stones on the flat saddle above the stream coming from the pass are believed by popular tradition to have been left behind by a Chinese army which was counted here. On September 19th we crossed the pass at the head of Dōzakh-dara at an elevation of about 14,000 feet, after an easy ascent past three old moraine terraces. On the northern side of the pass several small lakelets mark the position of a former glacial lake. Below a very large terminal moraine the track for 3 miles crosses very trying slopes of rock-debris choking the valley bottom, which accounts for the appropriate name of *Dōzakh-dara*, corresponding to the 'Höllenthal' so common in the Alps. Where the Dōzakh-

[17] Is it possible that the site of Jaushangāz is meant by the 'fortified town of *Chi-lien* on Mount *Fa-lo*' to which the Chinese record of Dharmacandra's journey towards Shughnān refers? Cf. above, ii. p. 880.



415. OXUS VALLEY, NEAR BARSHŌR, GHĀRĀN.



416. VIEW DOWN GHUND VALLEY NEAR CHARSIM.



417. RUINED DWELLINGS AT BIDĒCH, SHĀKH-DARA, SHUGHNĀN.



418. TOWER AND KIRGHIZ CAMP AT JAUSHANGĀZ, SHUGHNĀN.



419. GLACIER ON RŌSHĀN SIDE OF SHITAM PASS, SEEN FROM NORTH-WEST.



420. FERŌKH SANGAU GLACIER BELOW SHITOK-LĀZAR, RŌSHĀN.



421. TRACK OVER 'AWRINZ' IN BARTANG RIVER GORGE, BELOW KHAIZHEZ.



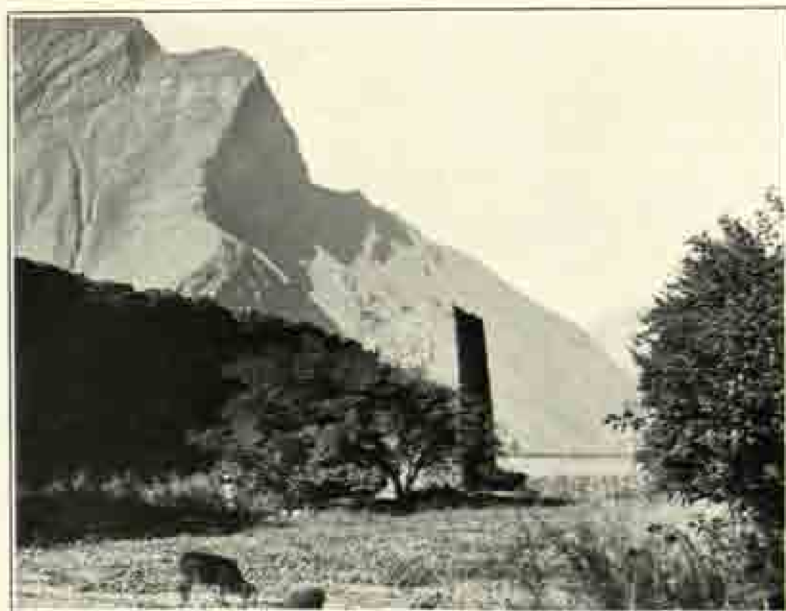
422. DESCENT ON SKIN RAFT THROUGH BARTANG RIVER GORGES, RŌSHĀN.



423. WALNUT GROVE AT PAGHŪ, RŌSHĀN.



424. BARTANG RIVER GORGE ABOVE YEMTS, RŌSHĀN.



425. CASTLE OF MĪRS OF RŌSHĀN, KALA-I-WĀMAR.



426. GROUP OF RŌSHĀNĪ FAMILY, KALA-I-WĀMAR.
(See p. [illegible], note 2.)

dara joins the open valley of Tokuz-bulak coming from the Koi-tezek pass, the Russian cart-road was reached. This brought us, a couple of miles farther on, to the smiling meadow land at Warkhēts in the main Ghund valley, where we halted (elevation about 10,000 feet).

On September 20th a delightful day's march down the Ghund river allowed me to gain some impressions of the middle portion of the great valley of which I had sighted the head, just a month before, from above the outflow of the Yeshil-kul. It showed very clearly the advantages it must have offered for traffic across the Pāmīrs towards Badakhshān, whenever conditions prevailing in Shughnān allowed it to be used in safety. That such could not always be depended upon in modern times was indicated by the forts of the Shughnān Mīrs that we passed at the hamlets of Sardim and Wang, and farther down below Charsim. Before reaching the last-named village (Fig. 416) among verdant fields and arbours, we crossed a formidable barricade of rock debris extending for about a mile and stretching right across the broad bottom of the valley. It had been thrown down at some period by a landslide from the frowning cliffs to the south. Numerous stone breastworks, both on the eastern and western edges of this barricade, proved the defensive use made of it at different times. Several smooth-faced rock fragments bear shallow sgraffiti in Arabic writing containing pious invocations or formulas, besides the usual rude representations of an open hand and of wild sheep. In the local Ak-sakāl's house at Charsim I was interested to note a living hall with the ceiling and skylight arranged in the same ancient style as observed at Mīragrām in Mastūj and fully described below in the case of a Kala-i-Wāmar dwelling.[18] From Wēr, another pleasant village, some six miles below Charsim, we crossed by a very rickety bridge to the right bank of the river and there made our way to Shitam (about 9,000 feet), a village of sixteen households, situated at the mouth of the very steep valley of the same name. By the glacier pass at the head of this we were to cross the high watershed range towards Rōshān.

In main Ghund valley.

Necessary preparations here caused delay in the start of the morrow, and I utilized it to listen to such scanty recollections as could be gathered from the greybeards produced as depositaries of Ghund local tradition. This proved distinctly less enduring than in Shākh-dara, not reaching back beyond the time of Shāh Abdurrahīm. Apart from this last but one of the Mīrs of Shughnān and his son Yūsūf 'Alī, there was vague remembrance only of a Mīr Salīm and a Shāh Kirghiz. That at one time Chinese control had extended to Shughnān was, however, known to all my informants. In support of this was quoted a short Persian inscription, said to be engraved at the village of Deh-baste farther down the valley. According to the verbal rendering, which was all I could obtain, it refers in metrical form to the boundary there fixed between Ghund and Sūchan (near Khāruk) 'by order of the Ḥāqim of the Khāqān-i-Chīn'. All my informants agreed in stating that during the rule of the last Shughnān Mīrs and the subsequent Afghān occupation the population of Ghund had greatly diminished owing to severe exactions. Emigration to Kōkand, Margilān, &c., became particularly prevalent owing to the Mīrs' practice of selling women and children as slaves to increase their revenue. In consequence places like Wang, Wēr, and Charsim were practically deserted until better conditions were secured through the Russian occupation. That Ghund was still under-populated was proved by the fact that most of the men I measured at Shitam were labourers who had come from the Rōshān side.

Local tradition in Ghund.

[18] See *Serindia*, i. p. 48, Fig. 16; below, ii. p. 887.

## Section IV.—FROM RŌSHĀN TO DARWĀZ

Ascent to *Shitam* pass.

On September 21st we left Shitam to cross the pass of the same name into Rōshān. After ascending the narrow valley, blocked in two places by masses of fallen rock debris, and passing old moraines as well as a small dried-up glacier lake at an elevation of about 10,400 feet, we camped that evening at Rijēw, about 12,600 feet above sea-level. This is the last point to which laden ponies can be taken, though under considerable difficulties. The ascent next morning brought us, at a distance of about three miles, to the lowest tongue of the ice stream which collects the flow from a succession of glaciers descending mainly from the south-west of the pass (Fig. 429). A huge ice-fall stretching across had to be avoided by gaining a high lateral moraine over a bare ice slope where we were obliged to cut steps. Farther up it became necessary alternately to advance over the much-crevassed ice of the glacier and to climb rock couloirs on its western side where there was danger in places from falling rock. Finally, after three miles more of such progress, we reached the narrow crest of slaty rock which forms the pass (Fig. 429) above the névé bed at the head of the glacier. Here, at an elevation of about 16,100 feet, we found the traces of a track by which Rōshān people somehow manage to bring across sheep, cattle, and ponies during the early summer months when snow facilitates the crossing of the glacier. There is no passage left for their transport lower down in the Bartang river gorges.

Views from Shitam pass.

From the pass magnificent views opened to the W. and NW. (Fig. 430), where the heads of fine glaciers unite in a large ice stream descending towards the Raumēdh valley. To the SW. across the boldly serrated crest line of the range with its névé beds (Fig. 427) we could see the soft outlines of the snow-covered tops of mountains belonging to Badakhshān, and to the south fine snowy peaks of the range (Fig. 429) dividing Shākh-dara and Ghund. The descent from the pass led first along névé beds (Fig. 419) and brought us, after a mile and a half of comparatively safe going, to a large lateral moraine. This was followed downwards until, after a march of another 3½ miles, the first patch of vegetation was reached at an elevation of about 13,900 feet. Descending farther along the grey ice wall of the glacier for 1½ miles, we arrived at the camping-place known as Sarkōlī-khaberga (about 13,000 feet elevation) just below its snout.

Rōshānis from *Raumēdh*.

Here I was glad to find a posse of men from Raumēdh waiting to relieve our hard-tried load-carriers from the Shughnān side. It was interesting to note that, while most of the latter spoke Persian fluently, none of the men from Raumēdh understood any language but their native Rōshānī, a dialectal variation of Shughnī. It was a striking reminder of the isolation which the comparatively large settlement of Raumēdh, said to include some 30 households, enjoys by virtue of its position in the mountains. It also brought home the fact of wider significance that Rōshān, owing to the natural difficulties of the Bartang valley, has never served like Shughnān as a thoroughfare between Badakhshān and the Pāmīrs.

Descent to *Khaizhēz*.

Our march of September 23rd down the valley led for the first five miles over a succession of clearly recognizable old moraine terraces left behind by the Shitok-lāzar, as the Raumēdh people call the glacier descending from the Shitam pass. According to their headman's statement the glacier had considerably advanced since his father's youth, and so also had the smaller glacier of Ferōkh-sangau (Fig. 420) which was passed at an elevation of some 1,700 feet below the snout of the Shitok-lāzar. It stretches down from WSW. into a perfectly level basin, about half a mile long and a quarter across. The first birch trees were met with at the 'Yailak' of Zhawōr, just below the last moraine terraces, and a luxuriant growth of these, together with junipers of great size, continued along the stream down towards its junction with that coming from Raumēdh. The large size of the latter and the grey colour of its water suggested that it is fed by considerable



**427.** VIEW FROM SHITAM PASS, CONNECTING THE PANORAMIC VIEWS IN FIGS. 429 AND 430.

← High range between Ghund and Shakh-dara →



**428.** ICE-STREAMS JOINING MAIN SITARGH GLACIER FROM SOUTH, SEEN FROM ABOUT 13,000 FEET.

Arête forming Shitam pass.



**429.** PANORAMIC VIEW FROM SHITAM PASS, ABOUT 16,100 FEET ABOVE SEA, BETWEEN SHUGHNĀN AND RŌSHĀN, TO SOUTH (LEFT) AND SOUTH-WEST (RIGHT).

Range towards Yārgulām.



**430.** PANORAMIC VIEW FROM SHITAM PASS TO WEST (LEFT) AND NORTH-WEST (RIGHT).

For photograph connecting this view with Fig. 429, see Fig. 427.

glaciers. Some three miles below this junction the bottom of the valley becomes very confined and the track, in places only a foot wide, along the steep slopes of detritus present great difficulty. But after passing two small patches of cultivation we suddenly emerged into the Bartang valley amidst the small terraced meadows and fields of Khaizhēz hamlet (about 6,800 feet elevation), where we halted.

The two days' journey which brought me from Khaizhēz down to Kala-i-Wāmar on the Oxus covered but a small portion of that main valley of Rōshān which I had first sighted high up at Saunāb. But it sufficed to impress me with the exceptional difficulties of traffic offered by the tortuous gorges in which the Bartang river has cut its way down to the Oxus. It also showed why Rōshān has always been the least accessible of all the valleys descending from the Pāmīrs, and why its people and ways have shown themselves most retentive of their old inheritance. The line of progress through these narrow deep-cut gorges (Figs. 421, 422, 424), between towering mountain masses wildly serrated above and very steep at their foot, was more troublesome even than the glacier pass by which we had approached them. Having crossed from Khaizhēz to the right bank of the river on a raft of goatskins we were immediately faced by a steep climb to the Khaipāst spur. With the river racing past it in cataracts it serves as a formidable 'Darband' or *chiusa*, and remains of stone breastworks showed that it was defended on occasion. Through Bartang gorges.

A couple of miles beyond there followed a succession of trying climbs up and down precipitous rock faces (Fig. 421), where the track leads along narrow ledges or is represented only by foot-holds a few inches wide. Fortunately it was possible for a few of us to avoid some of the worst of these *awrinz* by the use of small goatskin rafts (Fig. 422), where the absence of dangerous cataracts allowed of their employment. Guided by dexterous swimmers, they let us glide down the tossing river, forgetful of all fatigue, in scenery of impressive grandeur. Boldly serrated snowy peaks showed again and again above the high frowning rock walls, which, as they rapidly passed in succession, ever seemed to close in upon us. Meanwhile the baggage was being carried in safety by sure-footed Rōshānīs past precipices as bad in places as any I remembered in Hunza. Climbs along *awrinz*.

The uniform grimness of this mountain scenery was relieved by the pleasant contrast offered by the hamlets nestling here and there at the mouth of ravines and half hidden amidst fine walnut and other fruit trees. The dwellings I was able to examine at Rīt and again at Paghū (Fig. 423), where we broke our journey, seen from outside were indeed unpretending rubble-built hovels. But the interior, smoke-begrimed as it was, invariably showed arrangements indicative of rude comfort and interesting as obviously derived from antiquity. For there was the closest resemblance in essential features, such as the ground-plan of the living hall with its skylight ceiling and sitting platforms, to the internal architecture with which I had been made familiar by residences on ancient sites explored in the Taklamakān and by others still occupied by the living in Hindukush valleys to the south.[1] Alpine seclusion seemed to have kept this small corner of the world almost untouched by the change of ages, and I felt inclined to wonder whether it would have presented a very different picture to some Bactrian Greek or Indo-Scythian visitor of old. Ancient style of Rōshān dwellings.

The same impression was conveyed by the physical character of the men whom I met on my way down the valley (Fig. 443) or was subsequently able to examine anthropometrically at Kala-i-Wāmar (Fig. 444). Clean of limb and made wiry by constant movement over such impossible tracks, they all showed clear-cut features, generally light-coloured eyes and often faces of almost classical regularity. The conclusion suggested itself to me at the time that among the Iranian-speaking hillmen of the valleys that I traversed in this region it was the population of Rōshān that has preserved the *Homo Alpinus* type in its greatest purity, and Mr. Joyce's expert analysis, *Homo Alpinus* type of Rōshānīs.

[1] For the plan and description of such a Rōshān dwelling, see below, ii. p. 887.

in his Appendix *C*, of the measurements and other observations recorded by me has confirmed it.[1]

From Paghū to Kala-i-Wāmar.

From Paghū (6,600 feet) an instructive day's progress brought me on September 25th to Kala-i-Wāmar. The Bartang river before its junction with the Oxus above this, the chief place of Rōshān, passes through gorges if anything even more forbidding than those I had seen above. Between two of them, in which the track clings to almost vertical rock faces by frail wooden 'Rafaks' or ladders, lies Yemts, a picturesque village of some 30 houses ensconced among walnut groves and orchards. All the houses contained comfortable halls or Aiwāns, open loggias being very often added in front for use in the summer months. Rough as is the carving which decorates their woodwork, I could recognize the survival of some motifs which are clearly derived from the West and frequent in Graeco-Buddhist relievos, such as the four-petalled clematis-like flower and Roman rosette. It was a relief, after leaving Yemts by skin raft, to pass the last rock gate and reach the mouth of the valley where the Bartang spreads out to join the Oxus (Fig. 434) below the largest village of Shūjan. It was from the headman of the latter that I received the specimen of decorated wood-carving (Pl. LXVIII), used to hold the splinters of pine-wood which are burnt to light up Rōshān houses.

Old wood-carving from Kala-i-Wāmar.

The single day's halt, which was all that regard for the journey ahead and the advancing season would allow me to spend at Kala-i-Wāmar (elevation about 6,250 feet), found me encamped in the pleasant old orchard adjoining the ruinous castle of the Mīrs of Shughnān (Fig. 425). Besides doing much anthropometrical and other work, I used the opportunity for close examination of Ming-bāshi Mīr Shikrāk's house, a typical Rōshān dwelling, situated about half a mile from the fort towards the village of Barzūt. A piece of old wood-carving had been brought to me from it, and on inquiry I found it belonged to a fine double-arched window frame which, owing to intended alterations, had been removed from above the main entrance and put with the lumber. The photograph, Fig. 449, shows it as restored to its original place, and Pl. LXVIII as temporarily set up at the British Museum. The ornamentation of both window and door, though manifestly Saracenic in its main design, shows also elements of late Hellenistic origin, curiously Byzantine in appearance. This is particularly the case with the motif that decorates the jambs both of window and door, and is applied also to the fold of the latter. It consists of rows of circlets laced by a double scroll which

[1] The women of Rōshān are said to be famous for good looks and particularly for fairness of complexion. I had a wayside chance of convincing myself that this reputation was probably well deserved, when, in company with the Ak-sakāl of Kala-i-Wāmar, I passed three generations of his family assembled in a group (Fig. 426) near his home. Wife and mother were as fair of face as if they had been ladies of Europe. The elder of the two little girls in the group served to show how here, too, fashion endeavours to exaggerate favours bestowed by nature; for her grandmother was just then busily engaged in smearing her pretty rosy cheeks with some wild berries intended to bleach the skin.

Rōshān's fame for the beauty of its women might suggest that the name of *Rōxana*, borne by the daughter of the Bactrian chief Oxyartes, whose surpassing charms induced Alexander to make her his queen (Arrian, *Anabasis*, IV. xix. 5), may perhaps be derived from an earlier Eastern Iranian form, **Raukhshāna*, such as in all probability underlies the modern designation Rōshān.

By a custom, still well known in Hindu States of India and probably of old date, the different queens of the ruler are designated in common talk, not by their proper names, but by those of the territories from which they were wedded. Rōxana is said to have been captured with her mother and sisters in a high mountain stronghold of Sogdiana where Oxyartes had placed them for safety. Where exactly in Bactria the seat of Oxyartes lay we are not told. But if Rōxana was born to him by a princess of Rōshān or if Rōshān itself was included in his chiefship, she might well have become popularly known by a name derived from that tract.

As a local parallel might be quoted the name of Shāh Wanjī, borne by a Mīr of Shughnān who ruled towards the close of the eighteenth century and who derived his designation from the fact that his mother came from Wanj.

[Since the above note was written a reference kindly supplied by Sir George Grierson to Justi's *Altiranisches Wörterbuch*, not accessible to me, has shown that the name Rōxana is attested by classical texts for five other persons. This fact tends to invalidate the above conjecture.]

forms lozenge shapes within each circlet. The resulting ornamentation can be interpreted also as a continuous band of those four-petalled clematis-like flowers which occur so constantly on the Graeco-Buddhist relievos of Gandhāra and are frequent, too, in the wood-carvings of the Niya and Lou-lan sites.[3] Halves of the same flower are used to fill the spandrels left on the side of the jambs. The abundant rosettes also point to lingering classical influence.

The internal arrangement of the Ming-bāshi's house is typical of all Rōshān dwellings of the better class, and the notes taken of it, as illustrated by the rough plan and elevation in Pl. 50, may be recorded below.[4] The castle in which the sons or brothers of the Shughnān Mīrs, deputed to govern Rōshān, used to reside retains its thick outer walls of rough stonework. They are reinforced by large tree trunks set in it, after a fashion prevailing from the Indian NW. frontier right away to the Oxus. The interior, badly decayed, showed no distinctive local features. I was to meet there Muḥammad Ghiyāth Khān, the surviving son of the last Mīr of Shughnān, who had escaped the year before from his family's enforced exile at Kābul and had been allowed by the Russian political authorities to return to this part of his ancestral domain on a modest pension. The family of the Shughnān Mīrs claim descent from a 'Shāh Khāmōsh' of Īrān and are Sunnīs, while the great majority of their old subjects belong to the Ismailia sect. The heavy features and swarthy complexion of Muḥammad Ghiyāth Khān seemed to bear out this assertion of non-autochthonous origin.

Mīrs' castle at Kala-i-Wāmar.

On September 27th I started from Kala-i-Wāmar in order to make my way towards Karategīn across the easternmost valleys and ranges, once included in the principality of Darwāz; this since 1877 had become subject to the rule of the Amīr of Bokhāra. In view of the close approach of the season when the high passes on the route I had planned to follow might become closed by

Start for Bokhāra territory.

[3] See *Ancient Khotan*, ii. Pl. LXVIII, LXIX; *Serindia*, iv. Pl. XVIII, XIX. For the use of the same motif in modern wood-carvings of Chitrāl and Khotan, cf. *Serindia*, i. pp. 35, 48 sq.; iii. p. 1525 (Index). See also above, i. p. 26.

[4] Through the outer door (Fig. 449) a high and well-lit exterior hall (*dalīz*) is entered. It is divided by slender wooden columns into a central passage, i, and two aisles, ii, with their floor raised 2 feet to serve as sitting platforms. Behind a plain inner door a narrow passage leads into the hall (*chūt*) which serves as the living room for the whole household. Two small recesses open on this narrow passage from the winter quarters: on the right for the calves (*gaukhāna*), and on the left (*bajīd*) for the lambs. The former is roofed at a height of about 6 feet, and the space left between this and the ceiling is used as the sleeping-place for the children (*dishatak*), who thus get the direct benefit of a kind of hypocaustic heating during the cold of the winter.

The roof of the other recess is at a height of only 4 feet, and thus slightly above the level of the floor of the adjoining platform (*arzān*) in the proper hall. This, raised 3 feet 5 inches from the ground, contains the main fire-place and is reserved for the work of the women. They also command the small room (*khanjīn*) above the 'Bajīd', provided with an additional fire-place, and a corresponding space (*chirēzek*) screened off on the opposite side of the 'Arzān'. In front of the latter is a narrow platform, nearly 2 feet lower (*pish-arzen*), with a sunk space in the centre to receive the ashes from the 'Arzān'.

Opposite to the 'Arzān' is the platform of honour (*barnēkh*), which is reserved for the master of the house and his guests of distinction. The pillar between it and the 'Dishatak' bears the significant designation of *sir-takia-situn* (Persian *sitūn*). The other three pillars supporting the ceiling likewise have their particular names, as shown in the plan (Pl. 50), and their special attributions of rank. The platform facing the entrance (*lushakh*) and that adjoining it in the corner (*kunj*) are only 2 feet high and allotted to men of lesser standing. In front of the 'Lushakh' a broad wooden bench (*rāram*), slightly hollowed out, is used during the winter months for feeding calves and lambs.

Small recesses in the wall of the 'Arzān' and elsewhere serve as cupboards for the storage of miscellaneous small objects. Apart from the 'Chūt' there are no rooms for human occupation even in well-to-do people's houses.

The roof is invariably constructed in the antique fashion, found also in Chitrāl and Yāsīn houses, of four courses of beams forming successively diminishing squares or oblongs (*chār-khāna*); see *Serindia*, i. p. 14, Fig. 16; above, i. p. 44. The opening (*rōz*) left in the topmost course admits light and allows the smoke to escape.

The walls of the house are very thick, of rough stonework set in mud, and offer good protection against the bitter cold of the winter. But in other respects the traditional domestic architecture of Rōshān, while it compares favourably with that of houses of the old type I saw in Wakhān and Shughnān, is inferior in its standard of comfort to the ruined dwellings dating back to the early centuries of our era which I explored at ancient sites in the Tārīm basin.

early snowfall, with resulting delay in my further programme, I felt obliged to travel here rapidly. This circumstance, together with the fact that a considerable portion of this alpine territory of Bokhāra has been studied and described with care in publications readily accessible to the reader not acquainted with Russian,[5] will explain the succinct form in which the observations made on this part of my journey are here presented.

Ascent to *Adūde* pass.

In order to reach Yāzgulām, the valley adjoining Rōshān on the north, I chose the old route leading by the Adūde pass across the high ' Rōshān range ' which strikes towards the Oxus from the Sēl-tāgh. Communication between Rōshān and Yāzgulām along the right bank of the Oxus was rendered practically impossible by a succession of formidable defiles before the construction of the Russian bridle-path a few years before my passage. The approach to the Adūde pass led past the much-frequented shrine of Shāh Tālib, with the tomb of a famous Ismailia saint, up a narrow side valley where small patches of cultivation and summer grazing grounds were met with up to an elevation of about 10,500 feet. Starting on September 28th from Shahji-shau-jai, a point about 1,000 feet higher up, we ascended with laden ponies over old moraines and struck, at a distance of about 6 miles, a gently sloping glacier fed by comparatively small névé beds to the east and west of the pass. Numerous small crevasses were encountered before the watershed on the glaciated saddle was reached at an elevation of about 14,500 feet. A fine hanging glacier descending towards it from the east was a striking feature. To the north the view extended across the range separating Yāzgulām from Wanj to the high ice-crowned peaks rising between the latter valley and Darwāz.

Descent towards *Yāzgulām*.

On the descent northward we had to thread our way for about four miles in a zigzag line over the glacier before we reached its present end at a large sheet of ' dead ice ', overlooked by a high terminal moraine rising in front of it. Recent shrinkage of the glacier was here clearly marked. The steep descent from this point (about 13,300 feet elevation) led over a succession of old moraines down into a narrow valley filled at its bottom with a thick belt of birch trees and junipers. Beyond the junction with the Doderga valley the stream bed has cut itself an impassable cañon ; winding above this along steep slopes the track brought us at about 8,700 feet elevation to the first patch of cultivation. As we made our way farther down over boulder-strewn terraces, night overtook us and necessitated a halt at the first tolerably open spot, some six miles above Matraun.

Halt at *Matraun* village.

On our descent next morning to this Yāzgulām village I was greeted by Bokhāra officials sent up from the Darwāz side. Their presence afforded welcome assurance of the help which Colonel Jagello's kind forethought had prepared for my farther progress. At the same time their gay flowing silk robes and swarthy faces made me realize how soon the true alpine tracts of the Upper Oxus were to be left behind. The impression was strengthened by the perceptible heat encountered in the main valley during a short halt at Matraun (5,500 feet elevation) and by the appearance of the Yāzgulām people. Their sallow faces clearly betrayed the effect of the malarial fever which prevails in the lower portion of Yāzgulām, while what I saw of their houses showed that protection from the cold of the winter was no longer the chief concern of their builders.

Past *Yāzgulām*.

Shortness of available time obliged me to push on the same day towards Wanj. Hence my notes about Yāzgulām or *Yāzdum*, as it is known to its people, can only be of the briefest. Separated from the valleys north and south by high mountain ranges, and practically inaccessible both from the east and by the cañon-like gorges of the Oxus, Yāzgulām appears to have been for a long time a kind of no-man's-land between the chiefships of Darwāz and Shughnān-Rōshān. Its inhabitants were credited with having used the advantages of this position to prey impartially,

[5] See in particular Rickmers, *Duab of Turkestan*, Chaps. XIII, XIV, XVII, XVIII ; also Pumpelly, *Explorations in Turkestan*, ii. pp. 265 sqq.

when occasion offered, upon their neighbours both to the north and south. Nevertheless dependence on the Shāhs of Darwāz was, at least nominally, acknowledged, and is reflected in the fact that the Yāzgulāmīs are considered to be Sunnīs, like all the rest of the Galchas northward. A route, crossing the Oxus at the mouth of the valley, connects Yāzgulām with the tracts to the west of the river once included in Darwāz, and this being formerly the easiest line of access probably accounts for the political nexus indicated. Yet the population of Yāzgulām, reckoned at a total of some 190 households, speak a language closely related to Shughnī.[6] On the other hand, intermarriage freely practised with the people of Wanj may account for a distinct difference which I noted in physical type between the Yāzgulāmīs measured (Fig. 445) and the Rōshānīs.[7]

On moving through the gloomy gorges of the Oxus below Yāzgulām (Fig. 433) by the new bridle-path, blasted out of the perpendicular rock walls or leading over boldly built narrow balconies, it was easy to realize why the passage of this succession of *awrins* was formerly risky even for local hillmen and quite impossible for the carriage of loads. After passing those gorges we came in sight of the large village of Zhōmarch on the other side of the river, from which easy routes lead both to the grazing uplands of Badakhshān and down the left bank of the Oxus. There are easy tracks likewise on the right bank below the mouth of the Wanj river. The road thence down to Kala-i-Khumb, the capital of Darwāz, was said to have always been practicable for horses.

Oxus gorges below Yāzgulām.

By the morning of September 30th we had reached Rōkhar, the chief place of Wanj (5,600 feet elevation), with its ruinous old castle which then served as the residence of the Amīr's 'Amlakdār' governing Wanj and Yāzgulām. The appearance of heavy clouds threatening fresh snow on the Sitargh pass induced me to push up on the following day to the hamlet of Sitargh at its foot (6,900 feet elevation). This march of about 30 miles showed clearly the open character of the Wanj valley and its abundant cultivation. At only one point near Baraun had an *awrins* (Fig. 435) to be crossed. The change from the narrow peripheral valleys of the Pāmīr region was marked also by the evidence of a moister climate. Up to a height of a thousand feet or more above the valley bottom fields could be seen on easy slopes, which are tilled without irrigation and in years of average rainfall yield fair crops. On slopes too steep for cultivation there was abundance of tree-growth, while plentiful orchards around the villages and rows of trees planted between the fields gave to the broad terraces and alluvial fans of the valley quite a parklike appearance. In harmony with the altered appearance of the landscape there was also a change in the population. This displays the type of the Tājiks, as found throughout the hills of Bokhāra territory (Fig. 446);[8] they probably represent the Iranian race indigenous to ancient Sogdiana in greater purity than the 'Sarts' of the plains. The only language known to the people is Persian. The population of Wanj was estimated to me at 300 households. But I soon found that each of the homesteads, usually large whitewashed structures, sheltered the families of several brothers or relatives.

Valley of *Wanj.*

Heavy rain with fresh snow on the mountains necessitated a halt at Sitargh on October 2nd. Fortunately the sky cleared in time to permit us to start for the pass long before daybreak on the following morning. The ascent was steep but easy at first, the side valley leading up to the watershed towards Khingāb being clothed with alpine vegetation and fairly open as compared with the gorges which give access to the passes of Shitam and Adūde. From about 12,400 feet above sea-level the climb led over large snow-covered moraines. Along debris masses skirting a steep glacier

*Sitargh* pass crossed.

[6] See Sir George Grierson's remarks, *Ishkashmi*, p. 7, on the Yazgulāmī materials collected, and his reference to the much fuller account recorded by the late M. Gauthiot, *J. Asiat.*, 1916, vii, pp. 239 sqq.

[7] Both in Yāzgulām and in Wanj (see Figs. 445, 446) the frequency of goitre was very striking, as compared with its rare occurrence among the hillmen between Wakhān and Rōshān.

For anthropometrical data, see Mr. Joyce's Appendix *C*.

[8] See below, Mr. Joyce's Appendix *C*.

we finally reached the narrow ridge which forms the pass at an elevation of about 14,600 feet, nearly seven hours after the start. The view from the pass was limited to the head of the large glacier over and past which the descent leads. But when we had proceeded about 1½ miles over this, zigzagging between many long crevasses, and had reached the lateral moraine opposite a point near which the ice stream turns to the NW., about 300 feet below the pass, we came upon the grand panoramic view which the photographs in Figs. 431, 432 reproduce. The farther descent led over trying slopes of lateral moraines covered with fresh snow. In the course of it fine views were obtained up side glaciers of great size which come in from the south (Fig. 428). At last, after a total march of over ten miles from the pass, the present end of the united ice stream was reached, where it falls off with a snout some 150 feet in height. About three miles below it the small grassy plateau of Ziginzau (about 10,500 feet elevation) offered a camping-place for the night.

Descent to head of *Khingāb* valley.

On October 4th we descended by the stream coming from the Sitargh glaciers and reached by the evening the head of the long Khingāb valley at the village of Pashmghar. The first two miles led to the junction with the Burz-dara through a narrow gorge almost completely filled at its bottom by the stream or else by remnants of avalanches. After this it was an easy march. An abundant growth of large birch and juniper trees clothed the banks almost all the way and, together with fine grassy terraces above, bore witness to a moister climate. At an elevation of about 9,500 feet we passed the first actual cultivation, but traces of old terraced fields could be seen already some three miles farther up. Before arriving at Pashmghar, the highest village of any size in Khingāb, we had to cross the wide bed of the Garmo, the main feeder of the Khingāb river. It was a satisfaction to know that the previously unexplored valley of the Garmo had been carefully studied and surveyed in 1913 by a large and well-equipped expedition under Mr. W. R. Rickmers' leadership, right up to the southern foot of the mighty ice-crowned peaks which I had seen from above the Muk-su just two months before.*

Through *Wakhiā-bālā.*

From Pashmghar (about 8,500 feet elevation) two easy marches of some 35 miles altogether carried me to Lājirkh, at the western end of that portion of the Khingāb valley which is known as *Wakhiā-bālā*, the rest being reckoned as *Wakhiā-pāyān*. Throughout these marches we passed a succession of picturesque villages of small size, mostly situated on alluvial terraces above the right bank of the river and ensconced among orchards and arbours (Fig. 436). They looked prosperous notwithstanding obvious signs of maladministration, as carried on from Bokhāra; but much good land remained untilled, apparently through want of adequate labour. At the large village of Sangwār (7,400 feet elevation), where my camp stood for one night, there opens to the south the mouth of the considerable Mazār valley. Among the several passes which lead from its head to the Oxus Valley and to Wanj, the Vishkharwī pass was stated to be the only one practicable for laden animals, and even that not throughout the year.

Importance of *Wakhiā-pāyān.*

This shows that though Wakhiā-bālā with the rest of Khingāb appears to have belonged to Darwāz since medieval times, yet communication between it and the traditional seat of the chiefship at Kala-i-Khumb is certainly more difficult than it is with Kara-tegīn past the junction of the Khingāb river with the Surkh-āb. The greater importance of Wakhiā-pāyān in population and economic resources is shown by the statement of the well-informed 'Mīr-ākhur' of Lājirkh that in the days of the old Darwāz régime it was assessed for revenue as equal to Wakhiā-bālā, together with the valleys of Mazār and Sagridasht. According to the same informant, Wakhiā-bālā was reckoned at 500 households and the lower portion of Khingāb at 1,000. To the question of the earlier connexion of Khingāb and the adjacent valleys with Kara-tegīn we shall have to return farther on.

* See *Geogr. Journal*, 1914, Feb., pp. 182 sqq.

Sitargh pass

A

**431.** PANORAMIC VIEW FROM MORAINE BELOW SITARGH PASS (ABOUT 14,600 FEET) TO SOUTH EAST (LEFT) AND SOUTH (RIGHT).

For continuation at *A*, see below, Fig. 432.

A

**432.** PANORAMIC VIEW FROM MORAINE BELOW SITARGH PASS TO SOUTH WEST (LEFT) AND WEST (RIGHT).

For continuation at *A*, see above, Fig. 431.

## Section V.—FROM KARA-TEGĪN TO BOKHĀRA

Heavy rain obliged us to halt on October 6th near the Amlakdār's dilapidated head-quarters at Lājirkh (6,800 feet elevation). But fortunately the weather cleared and in spite of fresh snow on the mountains allowed us next day to cross the Gardan-i-kaftar pass (about 12,200 feet) and by a march of close on 30 miles to reach the Karashura river, which drains the great elevated valley of Tupchak. This and the pass which gives access to it from the side of the Khingāb have been carefully described by Mr. Rickmers, who made Tupchak his base for prolonged alpine explorations.[1] Hence the briefest reference will suffice to the Pāmīr-like character of this country and the imposing series of high peaks and fine glaciers (Fig. 447) that adjoin it on the south and south-east. Crossing of *Gardan-i-kaftar.*

From our camping ground, known to the Kirghiz as Kulike (about 9,000 feet), an easy ascent on the morning of October 8th brought us to the saddle of Khush-kulak, forming a low depression in the great range that stretches all along the valley of the Surkh-āb and borders Kara-tegīn on the south. From a knoll above the east side of the saddle a magnificent panoramic view extended from the snowy range of Peter the Great in the west past the great Alai chain to the glacier-girt peaks above Tupchak. The small section of the photographic panorama here taken which Fig. 361 reproduces shows the ranges overlooking the uppermost portion of Kara-tegīn and far away on the right the great ice wall of the peaks above Sēl-dara and Muk-su which we first sighted from the Tars-agar pass. It was a satisfaction to feel that two months' instructive wanderings across the Pāmīrs and the high valleys by the uppermost Oxus had brought me back again to that 'Valley of the Kōmēdoi' and the line of the ancient silk trade route which I had wished to follow. Ranges above Surkh-āb valley.

From the northern rim of the Khush-kulak plateau the descent led over broad spurs and terraces, affording rich summer grazing but already under snow in their upper portions, down into the open valley of the Surkh-āb. Passing fertile slopes where adequate rain and snow-fall permit of cultivation without irrigation, I noticed that harvesting at elevations from about 8,000 feet downwards was just proceeding. This, taken in connexion with the fact that the crops in Wakhān at heights of over 10,000 feet had been cut more than a month earlier, aptly illustrated the effect of far moister climatic conditions. At Oital (about 6,100 feet elevation), the first village reached at the valley bottom, I found myself once again among Turkī-speaking people. The comfortable villages of these settled Kirghiz, extending all the way down the valley from Kara-muk to Kala-i-lab-i-āb, with their closely clustering houses, fine orchards, and arbours, strikingly recalled submontane villages of Chinese Turkestān. From the first I gained the impression that the fertility and abundance of arable land, combined with the easy access to rich grazing grounds, must have attracted to Kara-tegīn invaders of Turkish race long before the last wave brought the present Kirghiz there. Descent into Surkh-āb valley.

The two long marches which carried me from Kānish-bēg, our first halting-place in Kara-tegīn, down to Gharm, afforded ample opportunity for realizing the plentiful agricultural resources of the valley and the facilities these must have afforded for the trade which once had passed through it. Whether on large alluvial fans or on fertile expanses by the left bank of the river, ample irrigation is assured by the numerous streams that descend from the snows and glaciers of the Peter the Great range. On the right bank, where the snows of the Zarafshān mountains are more distant and the supply of water for irrigation less easily secured, cultivation dependent on rainfall only was seen to extend over terraced fields to heights of 1,200 feet or more above the river. From Kala-i-lab-i-āb downwards, where the Surkh-āb is joined by the stream descending from the Laulī-kharwī pass, the 'thalweg' displayed such spacious ease as to bring back memories of Swāt. The local estimate which put the number of villages on the left bank at 80 and that of households at Resources of Kara-tegīn.

[1] See Rickmers, *Duab of Turkestan*, pp. 350–402.

3,000 between Kara-muk and Gharm seemed scarcely exaggerated. Yet there was evidence, especially along the upper portion of the valley, that agricultural effort was here far from being equal to the extent of arable land.

Turkish occupation of Kara-tegīn.

It was easy to trace the cause of this in what I observed with regard to the ethnic character of the people. According to local tradition the whole of Kara-tegīn down to Gharm was occupied until some two centuries ago by Kirghiz, while now their holdings stop at Kala-i-lab-i-āb and give place to settlements of Persian-speaking Tājiks. Kara-tegīn, as its present designation and the prevailing local names attest, appears to have been long occupied by a Turkī-speaking population, the Kirghiz probably representing the last wave of this Turkish invasion into what was originally Iranian ground. It was hence of special interest to observe how the Kirghiz settlers were now being slowly ousted again from the land by the steady reflux of Tājik immigrants from Darwāz, the Zarafshān valley, and other tracts farther west.

Kirghiz ousted by Tājiks.

The Kirghiz, who invariably still observe their customary semi-nomadic migration to summer grazing grounds, are obviously unable to extract from their land as much produce as their industrious Tājik neighbours. The latter accordingly find opportunity to buy up more and more of the holdings, while the Kirghiz owners, with their stock of cattle increased by profit on land sales, are tempted to emigrate to the Alai and the steppes farther north, where full scope is offered for life in accordance with their traditional instincts. The process of peaceful reconquest here observed is not without its historical interest; for it helps us to understand better how the original Iranian population of ancient Sogdiana has managed also in the plains and lower hills to regain a prevalent share in the land that had been wrested from it again and again by nomadic invaders.[2] At the same time the practice of Kirghiz intermarriage with Tājik females, of which I learnt on my passage through Kara-tegīn, served to illustrate another potent process, that by which the autochthonous Iranian population has gradually succeeded in so markedly transforming the racial character of its Turkish conquerors, when not altogether absorbing them.

Trade passing through *Gharm*.

Passing Langar-i-shāh, once the chief place on the left bank of the river, and other large villages ensconced in fine arbours and orchards (Fig. 437) I reached on October 10th Gharm, the seat of the 'Mīr' then administering Kara-tegīn for the Government of the Amīr of Bokhāra. The kind welcome accorded to me there during a day's halt in the 'Dādkhwāh's' large garden afforded interesting glimpses of the quaint medieval style of official pomp and circumstance then still surviving in these quiet backwaters of Western Turkestān. It also allowed me to gather useful information about that regular trade, largely in horses, sheep, and wool, from Kulāb, Baljuwān, Hissār, and other tracts north of the Oxus towards Kōkand and Margilān, for which Kara-tegīn still serves as the main line of passage. The route followed by this trade leads above Gharm up the right side of the valley, and it is at Gharm that the two lines of communication coming from Hissār in the south-west and the region between the terminal course of the Surkh-āb (Wakhsh-āb) in the south and the Oxus unite. It hence appears probable that Gharm has from early times always been a place of importance in Kara-tegīn.

Along Surkh-āb to *Āb-i-garm*.

From below the junction of the Surkh-āb and Khingāb the valley greatly contracts, and within two marches from Gharm it ceases for a considerable distance to be practicable for trade traffic. The numerous villages that we passed on October 12–13th on our way to Āb-i-garm lay mostly in fertile side valleys or else on plateaus well above the right bank of the Surkh-āb. Before finally leaving the main valley towards the close of the second march we enjoyed a striking view from

[2] In Kara-tegīn this process appears to have been distinctly favoured by its old 'Shāhs' and the Darwāz rulers who succeeded them. Though themselves of non-Iranian stock, they found it easier to practise their exactions on meek Tājiks than on Kirghiz and Özbeg subjects not altogether wedded to their shares of the soil.



433. VIEW DOWN OXUS GORGE BELOW AMURN, YĀZGULĀM.



434. VIEW DOWN OXUS VALLEY TOWARDS KALA-I-WĀMAR, FROM ABOVE MOUTH OF BARTANG RIVER.



435. "AWRINZ" ABOVE WANJ RIVER NEAR BARAUN.



436. HALT AT DASHT-I-BUN VILLAGE, WAKHIĀ-BĀLĀ.



437. VILLAGE MOSQUE AT YERKHĀB, KARA-TEGĪN.



438. MARKET VILLAGE OF FAIZĀBĀD, HISSĀR.



430. KIRGHIZ ANTHROPOMETRICALLY EXAMINED AT BĀSH-GUMBAZ, ALICHUR PĀMIR.



440. WAKHĪS ANTHROPOMETRICALLY EXAMINED AT WARANG, WAKHĀN.



441. ISHKASHMĪS ANTHROPOMETRICALLY EXAMINED AT NŪT.



442. SHUGHNĪS ANTHROPOMETRICALLY EXAMINED AT KHĀRUK.

a height over the far-stretched twisting gorge through which the river breaks before it emerges, as the Wakhsh-āb, far down towards the plains of the Oxus. Then ascending through a narrow defile we reached the wide upland basin of Āb-i-garm (about 4,200 feet elevation).

*Chü-mi-t'o of Hsüan-tsang.*

Here we have arrived at the westernmost limit of Kara-tegīn and also at the end of the alpine portion of that ancient trade route which we first had occasion to trace down the Alai valley. We have already noticed the location of Ptolemy's 'valley of the Kōmēdai' in Kara-tegīn.[3] There only remains for us now briefly to review the references to this territory in Chinese records which conclusively prove this identification to be true. The earliest of them is furnished by the mention which Hsüan-tsang makes of the territory of *Chü-mi-t'o*. It is contained in his account of the petty States which were comprised in Tu-huo-lo or Tokhāristān at the time of his outward journey, about A. D. 630.[4] The pilgrim did not himself visit Chü-mi-t'o 拘謎陀, but describes it as a country situated to the east of K'o-to-lo 珂咄羅. 'It is about 2,000 *li* from east to west, and 200 *li* from south to north. It is in the middle of the Ts'ung-ling mountains. Its capital is about 20 *li* in circuit. On the south-west it is near the river Oxus, and on the south it adjoined the Shih-ch'ih-ni country.' The bearings here indicated of neighbouring territories, together with the great length ascribed to Chü-mi-t'o, leave no doubt that Kara-tegīn is meant, as has long since been recognized.[5] For K'o-to-lo is certainly identical with the *Khottal* of early Arab geographers comprising the territory to the east of the lower Surkh-āb (Wakhsh-āb), i. e. Baljuwān, Kulāb, &c.,[6] and *Shih-ch'ih-ni* is Shughnān, correctly placed to the south.[7]

*Kara-tegīn in T'ang Annals.*

Some useful additions to the information recorded by Hsüan-tsang are to be gathered from the T'ang Annals. A notice of the *T'ang-shu* inserted between those on Shughnān and Wakhān tells us that '[the country of] *Chü-mi* 俱蜜 has its administrative centre in the midst of the mountains; it lies to the north-east of Tu-huo-lo; in the south it is near the Black River; the king is of the race of the Yen-t'o Turks'. Chü-mi is said to lie 500 *li* to the north-west of Shih-ch'ih or Shih-ch'ih-ni. Embassies to the Imperial court are recorded in the years A. D. 642, 719, and 742–55.[8] Elsewhere we learn from the account given of the administrative organization that the Chinese Government designed after the final victories of A. D. 658–9 over the Western Turks, that the district of *Chih-pa* 至拔 was established in the town of *Ch'u-sê* 褚瑟 in the kingdom of *Chü-mi* 俱蜜. No indication is furnished as to the position of this town.[9]

*Relations between Kara-tegīn and Darwāz.*

The notices of Hsüan-tsang and of the T'ang Annals supplement each other in a very satisfactory way. In the former the great length of the territory extending along the Surkh-āb is quite correctly brought out, while the latter indicates the true bearing of Kara-tegīn relatively to

[3] See above, p. ii. 849.

[4] Cf. Julien, *Mémoires*, i. p. 27; Watters, *Yuan Chwang*, i. p. 106.

[5] See above, ii. p. 849; with reference to Yule, *J.R.A.S.*, 1873, pp. 97 sq., it may be noted that the substitution of Darwāz for Kara-tegīn is due merely to the imperfect knowledge then available of the geography of these territories; also that Kara-tegīn was ruled at the time by the chiefs of Darwāz.

The location of Chü-mi-t'o in Kara-tegīn appears to have been first definitely indicated by M. Severtzov; cf. Chavannes, *Turcs occid.*, p. 164, note 1. But see also Tomaschek, *Sogdiana*, 1877, pp. 47 sqq.

[6] Cf. Marquart, *Ērān-šahr*, pp. 232 sqq., and in particular the translation there given of the important passage of Ibn Rusta, which correctly describes the course of the Wakhsh-āb, i. e. Surkh-āb, from the land of Kharluk Turks (Kāshgar, &c.) through the Pāmīr region, the territories of Rāsht and Kumēdh, and the gorge spanned by the Pul-i-sangīn, to Khottal.

Rāsht, which other early Arab geographers (see Marquart, *loc. cit.*, p. 236) mention as situated in a narrow valley through which Turks used to make raids into the easternmost marches of Khorāsān, must be looked for in the uppermost portion of Kara-tegīn where the Surkh-āb passes a succession of defiles below Kara-muk.

[7] The bearing relative to the Oxus is uncertain; Julien making it south-west, Watters south-east. Owing to the bend made by the Oxus and the great extension of Kara-tegīn from east to west either bearing could be accounted for, as the map shows.

[8] See Chavannes, *Turcs occid.*, p. 164.

[9] Cf. *ibid.*, p. 71, note.

Shughnān and the approximate distance between the chief places of the two territories. The estimate of this distance is easily accounted for if we take into consideration that the smaller valleys of Khingāb and Wanj may well have been ruled at the time from Kara-tegīn, just as in the reverse way the latter had become subject to the chiefs of Darwāz during the early part of the last century.[10]

Wu-k'ung's passage.

It only remains to mention that Wu-k'ung towards 786 A. D. coming from Tokhāristān passed through *Chü-mi-chih* 拘密支, i. e. Kara-tegīn, before proceeding to Ch'ih-ni or Shughnān. The territory of *Ni-sê-chih* 慧瑟知 named between the two cannot be definitely located.[11]

Journey beyond Kara-tegīn.

Starting on October 14th from Āb-i-garm I left behind the last of the valleys which descend from the Pāmīr region, and also the westernmost portion of that ground within the drainage area of the Oxus with which I could hope to gain some closer acquaintance on this journey. Regard for the time needed to reach my next goal in distant Sīstān and for the work planned there before my return to India obliged me to seek the Trans-Caspian railway at Samarkand by the nearest route and as quickly as possible. The nine rapid marches, covering some 270 miles, which brought me there across comparatively well-known parts of the Bokhāra hills offered little chance for close observation. My account of them must therefore be of the briefest and cannot extend to an examination of questions of historical topography connected with the important tracts of ancient Sogdiana that I was obliged to traverse so hurriedly.

Grazing grounds towards Faizābād.

My route for the first four marches led through the open valley plains of the once independent chiefship of Hissār which are drained by the Surkhān and Kāfirnihān tributaries of the Oxus. This fertile region must have always offered special attractions to originally nomadic invaders of Sogdiana. These advantages were fully brought home to me by what I saw of the splendid grazing grounds passed on the way across the watershed between Āb-i-garm and the Faizābād valley. These and the others to be found at the heads of the valleys which trend south from the Hissār range are all held by the Özbeg landowners of Hissār, who move up there for the summer with their flocks of sheep and large herds of cattle and horses. Taken together with the favourable climatic conditions which provide adequate rain and snow-fall for cultivation lower down in the valleys, these facilities for comfortable semi-nomadic existence must have all through the ages made Hissār a valued prize for conquerors from inner Asia, such as the Yüeh-chih and all their successors of Turkish race. Here, too, as in Kara-tegīn, there was evidence of the slow but steady reconquest of the soil through the spread of Tājik cultivation. On the gentle slopes near the watershed the inroad of these industrious Iranian settlers was confined to small patches of newly tilled fields scattered among rich pastures; lower down in the valley, as at the prosperous-looking market village of Faizābād (Fig. 438), a considerable portion of the land had passed long before into their hands, whether as tenants or owners.

Semi-nomadic Özbegs.

In the wide fertile stretches of plain, mostly loess, which we skirted for three days along its northern edge past Dōshambe, Kara-tāgh, and Rēgar, the most productive lands, capable of irrigation, are still held by Özbegs; but the labour is largely furnished by Tājiks. The conservative fashion in which the conquering race still clings to semi-nomadic customs was well illustrated by the 'Kapas' or portable felt-covered reed-huts found pitched in the courtyards of many Özbeg village homesteads. They had been brought back after use at the summer grazing grounds; but the owners evidently still continued to make them their quarters in preference to the frail mud huts built around them. The contrast in this aspect with the Tājik portion of the same villages was striking, and so also with the agricultural settlements of the Tārīm basin, which so much else in the physical setting and in the Turkī local names here recalled.

[10] See Yule, *J.R.A.S.*, 1873, p. 99, note, quoting *J.A.S.B.*, iii. p. 573.

[11] See Chavannes-S. Lévi, *J. Asiat.*, 1895, Sept.-Oct., p. 362; also above, ii. p. 880.



443. RŌSHĀNĪS ANTHROPOMETRICALLY EXAMINED AT PAGHŪ.



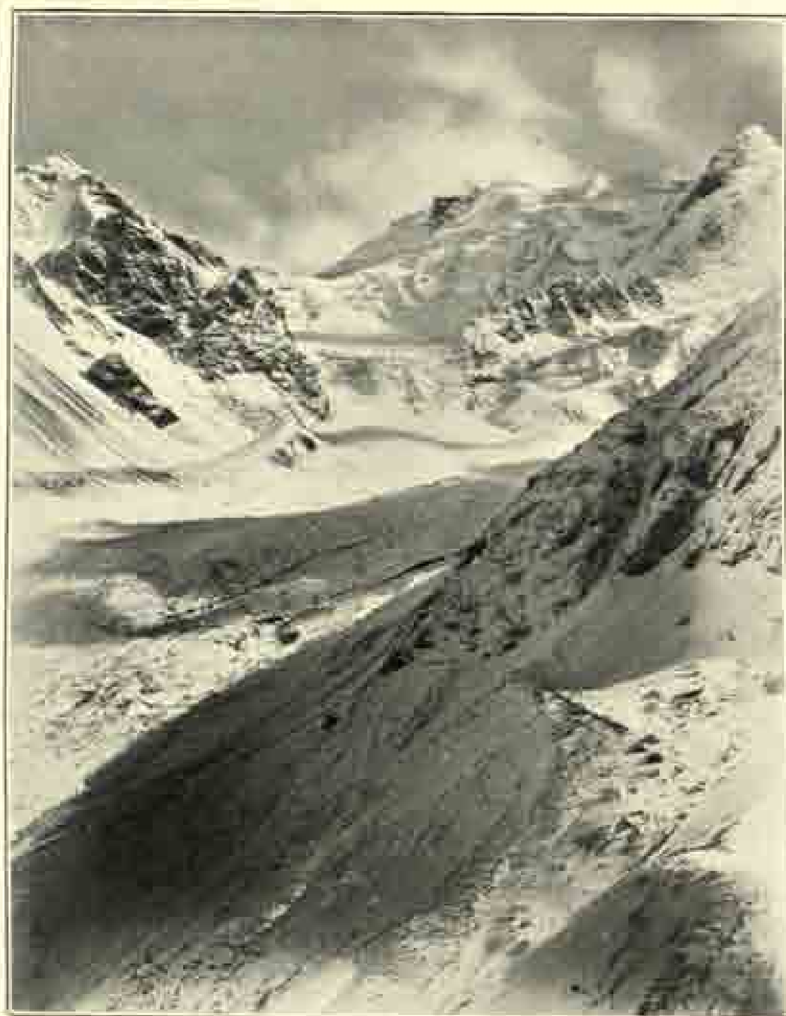
444. RŌSHĀNĪS ANTHROPOMETRICALLY EXAMINED AT KALA-I WĀMAR.



445. YAZGULĀMĪS ANTHROPOMETRICALLY EXAMINED AT RŌKHAR.



446. DARWĀZĪS, FROM WANJ VALLEY, ANTHROPOMETRICALLY EXAMINED AT RŌKHAR.



447. GLACIER SEEN EASTWARDS ON DESCENT FROM GIRDAN-I-KAFTAR PASS.



448. CLIFF OF DIW-DARA BELOW SHITKHARW, WAKHĀN.



449. OLD WOOD CARVING AT ENTRANCE OF MING-BASHI'S HOUSE, KALA-I-WAMAR.
For wood carving of window, see Pl. LXVIII.



450. GORGE ABOVE SANGARDAK, HISSAR.

In order to shorten the journey and to see something of the mountains which separate the Hissār tract from the plains of Bokhāra westwards I chose the route which leads from Sar-i-jūi past Tāsh-kurghān to Shahr-i-sabz. I thus missed seeing the greater portion of the ancient high road which passes from Termez on the Oxus through Shīrābād and 'Darband' towards the old centres of Sogdiana, Samarkand, and Bokhāra, and which Hsüan-tsang had followed through the 'Iron Gate'. The ascent through the narrow cañon-like gorges below Sangardak village (Fig. 450) was difficult in places, and this, together with the height of the Karkhush pass beyond, about 11,000 feet above sea-level and already under snow, sufficiently explains why traffic from the Hissār side makes the detour by the high road past Baisun and Darband. There was abundance of tree-growth on the picturesque mountain slopes, up to a height of about 7,000 feet, and this and the rich grazing on the downlike plateaus descending beyond the pass towards the village of Tāsh-kurghān both attested the favourable climatic conditions that here also prevail, in spite of the comparative nearness of the arid steppes of Bokhāra. After crossing another fine plateau, that of Kinnak, which nomadic Özbegs, known as Kongrad, from the tracts north of the Oxus frequent for its grazing, we reached the town of Shahr-i-sabz, in the wide and abundantly irrigated valley draining towards Karshi, on October 20th. Thence on the following day a long and dusty drive carried me across the Takhta-karacha pass and the wide peneplain overlooking the Zarafshān valley to Samarkand.

From Hissār to Samarkand.

The extensive repairs that our baggage and kit needed after three months of rough travel in the mountains, together with other work, detained me for two days in this great busy city. Its Russian part appeared to have grown greatly since my first visit in 1901 and looked even more than before like a town of Eastern Europe. Having previously visited the noble monuments of Timūr's period, I employed my present stay to inspect the plateau of Afrāsiāb, covered with debris mounds, to the east of the present city. It marks the site of the ancient capital of Sogdiana, the *K'ang-chü* or *Sa-mo-chien* of the Chinese records and the Maracanda of Alexander's historians.[12] Digging for antiques in these huge accumulations of debris appeared to have been discouraged by the Russian authorities during recent years. It was perhaps a consequence of this wholesome restriction that local dealers' shops could show me no antiques beyond a few fragmentary terra-cotta figurines curiously recalling Yōtkan ware and priced at exorbitant rates.[13]

Stay at Samarkand.

On October 25th I left by the Transcaspian railway for Bokhāra, the other famous centre of ancient Sogdiana, the *An* or *Pu-ho* of the Chinese Annals. On my former passage, in 1901, access to this city as to other parts of the Khanate had been denied me. Now a short stay enabled me to convey in person my very sincere thanks to the Khush-bēgi, the representative of the Amīr's Government, for all the help and attention I had enjoyed on my journey through Bokhāra territory. Before that visit to the historic 'Ark' I had taken occasion at the Russian Cantonment of Kāghān to express my warm gratitude also to Monsieur N. A. Shulga, the officiating Consul, for the kind recommendation of the Russian political authorities to which that very friendly reception had been due. My visit to Bokhāra, brief as it had to be, allowed me to see the monuments of its mediaeval greatness and to gain some impressions of the busy trade which probably since very early times has been centred in this chief terminal oasis of Western Turkestān. When on the evening of October 28th I said good-bye to Bokhāra, and with it to Sogdian soil, there was nothing to foreshadow in my mind the manifold convulsions and calamities which their people were doomed to pass through during the next few years.

Visit to Bokhāra.

[12] For excellent photographs of Afrāsiāb, see Rickmers, *Duab of Turkestan*, Figs. 22, 57.

[13] For specimens acquired in 1901, see *Ancient Khotan*, ii. Pl. LXXXVIII.

# CHAPTER XXVII

## BY THE EASTERN MARCHES OF KHORĀSĀN

### Section I.—FROM ASKHABĀD TO MESHED

Start from Askhābād.

On October 29th the railway brought me to Askhābād, the head-quarters station of the Trans-caspian Province. Regard for Russian frontier regulations, rendered more than usually stringent by the war, obliged me to start from Askhābād for the long journey to Sīstān, instead of making for Meshed, its first stage, by the shorter and more interesting route from Dūshak past Kalāt-i-Nādirī. A friendly recommendation from the Consulate at Bokhāra enabled me to secure, on the day following my arrival, the requisite permits for crossing the frontier. On the morning of October 31st I was able to leave Askhābād, where crowds of peasant families evacuated from Poland had seemed to bring the Eastern war zone in Europe strangely near. Otherwise the impressions produced by this important cantonment were curiously like those which one might have derived from a military station on the Indian N.W. frontier, if it had been transplanted to some modest oasis below the barren gravel glacis of the K'un-lun or T'ien-shan.

Journey to Meshed.

While the baggage in charge of Afrāz-gul was left to follow by easier stages, I managed in a light Russian carriage to cross the range which forms the frontier and to reach the Persian border station of Bājgirān by the same evening. There the attention of the Ilkhānī chief of the Kurds settled in the Kūchān district had provided a very friendly reception as well as a mounted escort. Next day a drive of close on 50 miles carried me through picturesque valleys and over the Alamanlik pass to the town of Kūchān. Two more days' driving over dusty roads took me through the wide open valleys that descend on either side of the almost imperceptible watershed at the head of the drainage of the Atrak river, and brought me on November 3rd to Meshed.

Stay at Meshed.

There at the famous old capital of Khorāsān I received the kindest welcome from Colonel (now Sir) Wolseley Haig, H.B.M.'s Consul-General. The necessity of awaiting the arrival of my baggage as well as preparations for the onward journey imposed a week's halt, and this was made most restful and pleasant by the hospitable reception which that distinguished scholar-diplomatist and Lady Haig were pleased to extend to me in their home. Besides being able to avail myself of clerical assistance from the Consulate Office in dealing with heavy arrears of work on official accounts, I also greatly benefited by Sir Wolseley's shrewd and most competent advice as regards the safe-guards to be taken on my farther journey.

The war conditions prevailing along the western frontier of Persia and the activities of German military missions endeavouring to push into Afghānistān from Kirmān were exercising a very disturbing effect upon the outlying tracts of Khorāsān within the Perso-Afghān border. The thin cordon formed along this border by widely scattered detachments of Russian troops in the north, and of British Indian troops in the south, was unable to prevent extensive raids by large bands of robbers from the Afghān side upon the main lines of communication leading from Meshed towards Birjand and Sīstān. Their operations were necessarily much facilitated by the desert character of most of the ground on either side of the border line. The expert advice I had received at Kāshgar from Sir Percy Sykes had induced me to plan my journey from Meshed to Sīstān along a route

lying well to the east of the usual high road, through Turbat-i-Haidari, Kāīn, and Birjand. It appeared to combine the attraction of traversing ground that was comparatively little known with that of passing some places of probable antiquarian interest.

At Meshed I learned to my special satisfaction that the projected route, though leading fairly close to the Afghān border, would owing to its unfrequented character probably make it easier for my little party to escape unwelcome attention and reduce the risk of unpleasant encounters to a matter of ill luck. Any doubt about keeping to my original plan was removed when I found that the dispatch of a small body of Hazāra Levies, newly raised for service in Sīstān from among old Sepoys living to the south-east of Meshed, would presently offer an opportunity of forwarding under safe military escort my travel-notes, photographic records, and reserve funds in gold to Sīstān. It was equally gratifying to find from the cartographical materials in the possession of the Military Attaché of the Consulate General that the ground which my proposed route would cross had never been systematically surveyed, and that consequently a traverse carried along it with the plane-table would eventually prove of use for possible future operations. Route along Perso-Afghān border.

During these busy days at Meshed I was rejoined by Surveyor and camp and much relieved by telegraphic news that my collection of antiques had safely reached its temporary place of deposit at Srinagar. Constant toil on much-delayed accounts and other writing work left me, unfortunately, little time for glimpses of the interesting city outside. But under the hospitable roof of the Consulate and within its fine large garden I had felt as if brought back to some English country house, and much refreshed by all the kindness and help enjoyed there I started on November 11th for Sīstān. Considering the great distance to be travelled and the critical state that political affairs in Persia had reached at the time, I had special reason to feel deeply grateful for the care which Sir Wolseley Haig had taken to facilitate, by all available means, my rapid journey onward. Nor can I omit to mention the excellent services rendered by the hardy Persian muleteers and their beasts, which allowed me to cover the 500 odd miles of the route, mostly through barren hills or across desert country, in twenty-one days without a single break-down or delay. Start from Meshed for Sīstān.

## Section II.—PAST THE PERSO-AFGHĀN BORDER

The three weeks spent on the journey from Meshed to Sīstān afforded me a welcome opportunity of gaining general impressions of the physical features and conditions of life in the hills and valleys that we passed through. These form the eastern marches of present-day Khorāsān towards the Herī-rūd tract in the north and the drainageless desert depressions crossed by the Perso-Afghān border line in the south. But my unavoidably rapid passage would not allow of any close study either of ground or people, and the systematic survey of the former carried out by parties of the Survey of India, during the operations of the Eastern Persia Force in the later years of the war, has rendered any detailed reference to topographical features unnecessary. Nor have I since had time for the study of any historical data bearing on the past of those tracts. These facts, together with present limitations both of time and space, will suffice to explain why the record of this portion of my journey must be restricted to bare indications of the route followed and to brief notes on such points of antiquarian and ethnographic interest as attracted my attention while passing along it. Eastern marches of Sīstān.

The first two marches brought me to Farīmān along the main road connecting Meshed with Herāt. The half-way halt at the walled village of Sang-bast allowed me to visit the site of the adjacent ruined town, which tradition asserts to have been founded by Ayāz, a Wazīr of Maḥmūd of Ghazna. The massive domed building and high Mīnār with fine carved brickwork, which are the only structural remains still standing, are both ascribed to the founder, and thus rank among the earliest extant Muhammadan monuments of Īrān. But as these interesting ruins have been Ruins at Sang-bast.

thoroughly examined and described by a competent student of Near-Eastern art, Dr. E. Diez, a mere reference will here suffice.[1]

Memories of Turkomān raids.

All the way to Farīmān and over much of the country beyond, it was easy to recognize traces of the ravages to which the peaceful Persian cultivators of this portion of Khorāsān had long been subject, owing to the slave-raiding and plundering inroads of their Turkomān neighbours in the north, before the Russian conquest of Trans-Caspia. The effects of this ancient scourge were plainly visible, on the one hand in the limited extent to which the available fertile land, here largely independent of irrigation, was actually under cultivation, and on the other in the many towers still standing in the villages or scattered among the fields. They had served as places of refuge to be hurriedly sought when Turkomān raiders, sweeping across hills and valleys, would make their sudden appearance. It was accordingly with considerable interest that I welcomed, as a quasi-historical relic of those raiding times, sturdy old Mīr Muḥammad, a Tekke Turkomān (Fig. 469), who under orders from the Consulate joined me at Farīmān for a couple of marches. He was one of some two dozen fellow tribesmen who, after the Panjdeh fighting of 1885, had thrown in their lot with the British and left what became Russian territory. Along with six others among these exiles, he was now employed as Dāk-rider to carry from Herāt the weekly Consular mail, which was being sent there for Meshed through Afghān territory from the Indian railhead at Chaman. He had taken part when young in many a *chap* or raid, and would readily talk of the 'bags' of slaves he had helped to carry off and the long night rides that preceded such exploits.

Methods of Turkomān raiding.

The details I learned from him of the methods of carrying out these raids explained both the extraordinarily great distances over which the raiders travelled and the secrecy upon which their success depended. Rations for men and horses used to be carried by these raiding parties only for the first three or four days required for the passage of that belt of hills on the border which owing to its vicinity to the Turkomān grazing grounds was altogether uninhabited. Subsequently supplies were obtained at prearranged points from Persian villages, which were spared on condition of maintaining absolute secrecy as to the raiders' movements, complete surprise being an essential condition of success. This careful planning, combined with the exceptional fleetness and staying power of the Turkomān breed of horses, makes it possible to understand such remarkable feats as the famous raid that extended as far south as Sīstān and was rewarded with abundant booty. It interested me to see, manifested in Mīr Muḥammad's quiet air of superiority, his pride in belonging to a race which, for centuries, had inspired dread in the Irānīs. At the same time his fine, wholly non-Mongolian, features illustrated clearly enough that thorough infusion of Iranian blood which the whole Turkomān race has undergone, as have so many other Turkish invaders of Western Asia. In my Turkomān's pleasant company I found it easy to realize that the 'Turanians' of Persian epic tradition, the Tūiryas of Zoroastrian religious texts, may well have been essentially of the same stock and speech as their settled neighbours cultivating the fertile oases of Īrān, who hated and feared them as their hereditary foes.

Semi-nomadic life of Hazāras and Balūch.

The next two marches took me by the pass of Kalla-mīnār ('the tower of skulls') across the hill range to the south. Its opposite slopes are occupied by Mongolian Hazāras and Balūch tribesmen, respectively. Their ways, still partly those of herdsmen, served to illustrate the slow process by which the Persian population of settled cultivators has again and again managed to digest and absorb invaders of originally nomadic character. The large valley of Bakhārz, through which we then passed, receives plentiful water from the range to the south. The villages of Himmatābād, Kala-i-nau, Abnia, which our route traversed on November 15th, lay all ensconced among orchards, and looked more attractive than any that we saw on the way to Sīstān.

[1] See Diez, *Churasanische Baudenkmäler*, 1918, pp. 52 sqq.

A striking contrast was presented by the barren southern slopes of the same range, over which we reached, on November 17th, the desolate town of Rūi-khāf. The deserted interior of its crumbling circumvallation of mud walls curiously recalled some of those ruinous 'towns' to be found along the Chinese high road leading through the Su-lo-ho valley. The scanty stream of Rūi-khāf drains into the northernmost of those wide desert depressions, holding salt lakes or marshes, which stretch in a line from north to south and divide the hills and plateaus of Khorāsān from the foot of the Afghān uplands eastward. Prepared thus by Rūi-khāf for a succession of marches across dreary wastes, I appreciated all the more the surprise that awaited me at the little oasis of Khargird only three miles beyond. There, near an old fort and a cluster of vaulted mud houses representing the village, rises the ruin of a beautiful Madrasah built by the Timuride Shāh Rukh, A. D. 1444. The plan of this finely proportioned structure, a noble quadrangle (Fig. 453) surrounded by double stories of arched quarters and entered from the east through a grand vaulted gateway, conforms closely to that of most of the college buildings of the same period at Samarkand and Bokhāra. No detailed description is needed here, since the ruin was carefully studied by Dr. E. Diez a few years before the war[2] and at a time when its chief glory, the exquisitely coloured tilework that adorns the façade and the walls facing the quadrangle, had suffered less destruction. *To Rūi-khāf and Khargird.*

The excellent masonry of hard burned bricks had withstood the ravages of time very well in most places; so had also the enamelled tiles, which cover most of the wall spaces with graceful floral designs or arabesque tracery in harmonious colours. But unfortunately this beautiful decorative display had attracted the attention of those who endeavour to minister to the greed of Western collectors. Owing to the great hardness of the brickwork and the brittleness of the enamelled tiles set in it, it was inevitable that the damage done in attempts to remove portions of the decorated surface should be lamentably great. I found the whole of the ground within the quadrangle strewn with the debris of brick fragments still retaining their brilliantly coloured glaze. From among them were picked up the specimens illustrated in Pl. XVIII and others. Local information ascribed much of the damage to officers of Cossack posts stationed at the village of Barābād and elsewhere on the Russian cordon line towards the Afghān border, operating through their men. In the two domed halls rising on either side of the high vaulted gateway, the walls and niches were richly decorated with painted stucco (Fig. 470). Here the delicate tracery designs executed over low relief in pale blue and gilding had suffered less from vandal treatment. Set against a background of utterly barren foot-hills, by the side of a little green oasis, this noble edifice with its glow of colours seemed to symbolize in exquisite concentration the finest features of Persian art and culture. I much regretted that time did not permit me to visit the village of Zūzan, some twenty-four miles away to the SW., with ruins comprising another Madrasah of Shāh Rukh. *Ruined Madrasah of Shāh Rukh.*

At Rūi-khāf we had entered a zone where cultivation depends almost exclusively on Kārēz irrigation. What the industry of Persian peasants can achieve with its help in the midst of otherwise arid wastes was shown by the pretty villages of Barābād and Sangān, which were passed on our way down into the Namak-sar basin. At both places plantations of fine cedars were a striking feature. They are maintained with great care in order to afford protection against the violent winds that here sweep down from the north-east and would otherwise injure crops and other vegetation. 'Aspiration' caused by the low-lying desert basin is the obvious explanation of the direction and violence of these winds. This and the bare gravel plain and the brackishness of its scanty surface water all helped to carry my thoughts back to the desolate glacis south of Lop-nōr. *Approach to Namak-sar basin.*

Nor did this setting lack its appropriate accessory of an abandoned site. On approaching the poor cluster of mud hovels round the small dilapidated fort of Mujnābād, we passed a debris area *Abandoned site near Mujnābād.*

[2] See *ibid.*, pp. 70 sqq.

of the regular 'Tati' type extending for about half a mile. Local information secured during a night's halt there pointed to the site having been occupied by an 'old town' down to the time of Shāh Abbas. The few specimens of glazed pottery (Pl. XVIII) and fragments of ornamented bronze picked up here fully support this dating.[3] The old name of the place was said to have been *Manijābād* and to be derived from that of a daughter of Afrāsiāb.

Halt at Bamrūd.

On November 20th a march of some thirty-five miles carried us over a low barren hill range fringing the Namak-sar depression to Bamrūd. We encountered no habitation, and only at one place wells occasionally visited by shepherds. The small village of Bamrūd lies in a wide bare valley which drains eastwards into a second depression holding a salt marsh near the Afghān border. The route leading past it was in frequent use by parties of robbers from that side, and Bamrūd was not without reason supposed to enjoy immunity from their attentions by serving as a convenient victualling station. A band that had recently captured a large convoy of camels on the high road between Kāīn and Turbat-i-Haidarī was expected to pass very shortly on its way back, and acting on local advice we used the protection here afforded for a day's halt.

Valley of Tabbas.

Two long marches then carried us due south through the hills of Āhingarān and Gūmeh to the wide valley of Gezik. Of the three small villages passed on the northern slope of the range that we crossed, that of Gūmeh was found to be occupied by people of Arab appearance and speech. It brought home to me that my cherished Central-Asian field was now finally left behind. From the comparatively populous village of Gezik we reached on November 24th the broad upland valley of Tabbas-i-Mazena, which physical features and antiquarian observations combined to invest with some interest. Barren enough the open valley looked; for whatever drainage it receives in its upper portion disappears on the large peneplain of clay and gravel, fringed by bare hill chains, long before the valley passes into a third desert depression, significantly named Dasht-i-Nāumēd. Yet the water-supply obtained from an extensive system of Kārēzes had evidently sufficed at one time to maintain cultivation over a much greater area than is now tilled by the four hundred odd households of the Tabbas tract.

Decayed town of Tabbas-i-Mazena.

This was clearly proved by the size of the ruinous walled town (Fig. 451), which, as abundant remains of crumbling dwellings all round it showed, had once formed but the nucleus of a much larger settlement. The tiers upon tiers of small domed structures of mud bricks filling the interior of the circumvallation were distinctly instructive from an archaeological point of view. The lower

[3] **Muj. 01. Fr. of pottery,** from base of bowl; shows rounded ring foot. Glazed inside copper green with slightly incised annular line; within a rosette of thick solid black petals curved as though swirling; each separate and widely detached. Diam. 3"; H. 1". Pl. CXVIII.

**Muj. 02. Fr. of pottery,** from base of bowl; shows heavy ring foot. Inside glazed white with patterns in zones painted in grey outline with touches of bright blue-green and grey-blue. 3¼"×2¼"×⅜".

**Muj. 03. Fr. of stone vessel,** from rim and wall. Flat front of rim ornamented with cross-hatching. Below rim there is a set back of about ¼", and from this the wall gradually bulges outwards. 2¼"×1½".

**Muj. 04, 05, 06, 08. Frs. of pottery.** Glazed. *04*, from lip of bowl. Turquoise inside and over lip to about ¼" down outside, where glaze has turned to yellow. *05+06*, from turquoise glaze inside, with pattern of annular lines and panels in dense black. *08*, from lip of bowl; glazed both sides turquoise, changed to a mottled quality inside. Bold pattern in black, inside. Gr. fr. (*08*) 1⅝"×1 3/16". Pl. CXVIII.

**Muj. 09, 010, 011. Bronze.** *09*, vase-shaped object. Bulbous body with trumpet-shaped projections above and below. Top surface pierced with broad lateral slit. Underside entirely open. Round bulb a zone of engraved Kufic characters with floral background divided into four parts by circular panels in each of which is a double-line small circle placed above centre. Round shoulder an incised line and a corresponding line on under-side of bulb. Near edge of lower 'trumpet' a band of engraved guilloche. H. 3⅛"; diam. 2".

*010*, small turned 'baluster' with 'ball' and 'cone' forms, divided by three annular ribs and ribs above and below. Broken above 'cone'; other end has flat surface; whole suggests a modern seal. 1⅞"×⅝".

*011*, peacock finial, has forward pointed crest and three-pointed tail, turned sideways. A short, thick, round tang below for insertion into other portion (missing). 2"×1⅛". Pl. CXVI.



451. VIEW ACROSS TOWN OF TABBAS-I-MAZENA FROM SOUTH.



452. SAYĀD REED HUTS NEAR KŌH-I-KHWĀJA.



453. NORTH-WEST CORNER IN COURT OF RUINED MADRASAH, KHARGIRD.



454. GROUP OF SAYĀD FISHERMEN ANTHROPOMETRICALLY EXAMINED NEAR NAIZĀR.

'rooms', many of which had probably been used as stables at one time or other, were filled with refuse almost to the domed ceiling. This had obviously accumulated through big holes in the floors of the rooms above and had reduced those below to the condition of dustbins. In many places the same had in due course happened to rooms of the upper tier, and others had again been built on the top. I could not have wished for a better illustration of the way in which those remarkable refuse heaps excavated by me at the Mīrān fort in 1907 had gradually been formed within the warren-like quarters of its Tibetan garrison of the 8th–9th century.[4] Evidently there, too, the construction of fresh mud hovels above was found to involve less effort than the clearing out of steadily accumulating rubbish.

*Debris area near Khurumak.*

After leaving the fortified town, now deserted for the most part, by the track leading to Dastgird, we passed, over a distance of more than five miles, patches of intensive cultivation alternating with bare gravel 'Dasht' and abandoned village sites of no great age. But close to the west of the hamlet of Khurumak I was shown a debris area of the 'Tati' type, fully half a mile square and manifestly much older. It is known as *Shahr-i-Raukān* from another hamlet farther south. Occasional finds of antiques here were acknowledged; but I obtained none beyond fragments of glazed and decorated pottery which could be picked up in abundance. The specimens described in the List below, of which some are illustrated in Pl. XV, XVIII, seem to point to occupation of the site down to late medieval times. It deserves to be noted that some of the pieces (Khu. 07, 16, 27, 31), as pointed out by Mr. Andrews, are probably of Chinese manufacture. A determination of the approximate age of these may help towards dating the prevalent local ware.

*Cause of limited cultivation.*

The fine old 'Naib' of the tract, Muḥammad Yūsūf Khān, who very hospitably received me for the night in his defensible manor house, could give no definite reason for the extensive decay of Tabbas. The fourteen Kārēzes now in use were said to yield sufficient water for the land actually under cultivation, and more could easily be constructed if only money enough were available for the purpose. The unsettled condition of the country made it impossible to raise the necessary capital, while the population, which had been kept down in the old days through the recurring Turkomān raids, had not yet grown sufficiently to exert any pressure.

## OBJECTS COLLECTED FROM DEBRIS AREA NEAR KHURUMAK, TABBAS

*General Note.*

All fragments except 056 are glazed. The body varies in colour from light terra-cotta to pale buff or white. Colours used in decoration are blue, green, and black. Glaze varies from nearly white to green-blue. It is probable that some of the frs. are Chinese; 027 and 031 seem to be a true Chinese porcelain.

**Khu. 01, 03, 04, 05, 06, 08, 015, 017, 018, 019–25, 028, 030, 032, 036, 037, 041, 047–9, 052. Frs. of blue and white pottery.** Body light buff; granular glaze, pale starch, greenish white and tones of ivory white, mostly crackled but adhering well. Painted decorations in various tones of blue, from strong ultramarine to dull grey-blue. Outlines frequently in dark grey. Patterns all fragmentary and generally floral. Perso-Chinese. Annular lines appear at suitable places, such as round lip, foot, or shoulder.

Glaze of 024 + 036, slightly 'lustred'. All pieces moderately well executed. Gr. fr. (*024*) 4¾" × 1¾". Pl. CXVIII.

**Khu. 02. Bronze disc,** with scalloped edge. Diam. ⅞". Pl. CXVI.

**Khu. 07, 016. Fr. of rim of pottery bowl (?),** in two pieces. Body porcellaneous frit, white, covered with thin white glaze. Edge slightly scalloped. Painted in blue with fine black outlines. Inside, a floral scroll, border in white on blue ground, with paler blue outer bands; below, plain white. Outside, a broad border containing dragon and clouds. Below, further pattern indicated. Probably Chinese. 2¾" × 1¼" × ⅛". Pl. CXVIII.

**Khu. 026, 050, 053. Frs. from pottery vessels;** *026*, pale terra-cotta body with lighter unglazed slip outside, and olive-green glaze inside. *050*, buff body, with faint traces of greenish glaze inside; outside, thick dark turquoise glaze, dull from weathering. *053*, part of straight rim of vessel glazed unevenly inside and out like 026. Edge of rim unglazed. Av. size, 1¼" × ⅞" × ⅛".

**Khu. 027. Fr. from rim of pottery vessel.** Hard white porcellaneous body. Thin, hard, starch-coloured glaze.

[4] Cf. *Serindia*, i. pp. 459 sqq.

Decoration inside and out in fine blue. A thin annular line ¼" below rim on both sides, with traces of floral ornament outlined blue and washed in with lighter tone of same. Prob. Chinese. 1⅝" × 1¼". Gr. thickness ⅛".

**Khu. 029. Fr. of wall of pottery vessel.** Buff gritty body, glazed plain white inside, and fine Wedgwood blue outside, probably both over thin white slip. Surface, egg-shell glaze due probably to weathering. 2¼" × 1⅜" × 3/16".

**Khu. 031. Fr. of rim of pottery bowl.** Extremely thin; very slightly everted lip. Painted outside in pale blue, outlined darker blue. A standing Chinese figure in long robe (?). Lower part discoloured. Chinese porcelain. 1¼" × ¾" × ⅛" nearly, at thickest part.

**Khu. 033, 034, 035, 038, 042, 043. Frs. of glazed pottery**, all of same type. Body pale terra-cotta, slightly gritty, covered inside with white slip, over which black. Pattern scratched through black to white slip and sometimes through slip also. The whole glazed inside with pale greenish translucent glaze; *042* with dark green-blue.

*034* and *038* are parts of rim and wall of shallow dish (?). Glaze on these is also on outside, but edge is wiped clean to prevent sticking in firing as in Chinese ware. Sgrafitto patterns are freely drawn scrolls and tendrils, too fragmentary to reconstruct.

*033* and *043* have slightly darker and coarser body, are not glazed outside, but have similar scroll patterns and broader scalloped bands. Gr. fr. (*033*) 2⅜" × 2⅝" × ⅜". Pl. CXVIII.

**Khu. 039, 040. Frs. of pottery bowl.** Buff, gritty body, finely glazed inside and out with pale blue-green over thin white slip. Both frs. are from straight rim of bowl; decoration consists of annular line in black inside about 3/16" below lip and same outside. Below and touching the line, on inner surface, a row of straight-sided trefoil-tipped petals in bold black outline, and a repetition of same in thin blue-green line, the centre point of petal falling in the space between side foils of adjoining black petals. Persian (?). Glaze fine and hard, and black very fine. Gr. fr. 2⅜" × 1½" × ¼". Pl. CXVIII.

**Khu. 044. Fr. of rim (?) of pottery bowl.** Pale terra-cotta, gritty body. Glazed both sides over thin white slip, and painted with green and black. Decoration consists of a border band of brilliant blue-green lines crossing each other at right angles and so forming a series of squares. The green is translucent and has spread in the colourless glaze. A second series of squares are painted in solid black lines placed so that corners of green squares come in centre of black squares. Black band along outer and inner edges of border. Outside, traces of pattern in black line. Width, 1⅝" × 1½" × (thickness) 3/16". Pl. CXVIII.

**Khu. 045, 046, 051, 054. Frs. of pottery.** Pale terra-cotta body. Glazed greenish-blue inside, with traces of glaze outside. Pattern in black, annular lines and formal floral patterns. *051* and *054* show part of simple rim, prob. of bowls, with glaze darker than other two frs. In all glaze adheres badly. Gr. fr. (045) 1⅜" × 1 5/16". Pl. CXVIII.

**Khu. 047. Fr. from pottery bowl,** of similar type to 045 but with glaze dull grey and pattern dull cobalt blue. 1⅛" × 1⅝".

**Khu. 050. Fr. of pottery,** curved in both directions. Pink-buff body, gritty; glazed outside a fine turquoise blue dulled from weathering. Traces of same glaze thinly applied inside. 1⅛" × ⅜".

**Khu. 053. Fr. of pottery bowl.** Rim and part of wall. Pale terra-cotta, gritty body, glazed both sides with grey, uneven on outside. ⅝" × 1¼".

**Khu. 055. Fr. of pottery from wall of vessel** (bowl ?). Terra-cotta, gritty body. Glazed white on inside, with pattern in cobalt, consisting of pair of annular lines and fr. of floral (?) pattern. Traces of white glaze on outside. 1⅝" × 1½".

**Khu. 056. Fr. of pottery,** terra-cotta with boldly raised band at one edge and part of palm-leaf pattern in relief on lower surface. No glaze remaining; much weathered. 1½" × 1¼". Pl. CXV.

**Khu. 057–9. Frs. of glass.** Pale green; *057* and *059* oxydized and the latter showing metallic lustre. Largest fr. (*057*) 1⅛" × ⅜".

## Section III.—INTO THE HELMAND BASIN

Through hills from Dastgird to Duruh.

Two marches sufficed to bring us from Dastgird, whose subterraneous drainage flows into the same desert depression as does that of the valley of Gezik, to the oasis Duruh at the north-western extremity of the great basin receiving the terminal course of the Helmand. Instead of keeping to the usual caravan route, we followed the more direct track along the much broken top of the hill chain which divides the valley of Duruh from the wide trough sloping down towards the Afghān border. The few little patches of fields that graziers till among these rocky ridges are wholly dependent on springs. The fact that cultivation cannot be carried on here by rain and snow-fall only, though the range is close on 6,000 feet high, was a clear indication of the distinctly arid climate in the wide region we had approached.

The village of Duruh, which comprises some three hundred homesteads, is situated under a bold conical hill crowned by a small ruined fort. It forms a pleasant green oasis in the wide and other-

wise wholly barren valley. From there I proceeded, on November 27th, to visit the ruined hill fastness of *Ghāla-kōh*, of which I had first heard from my host, the Naib of Dastgird. It proved a distinctly interesting site of undoubted antiquity. Starting from our camp near the southern end of the oasis at an elevation of about 4,000 feet, we moved SE. up the gentle scrub-covered gravel glacis of the range for about 5½ miles to the foot of the bold isolated peak of Ghāla-kōh. It had stood out as a conspicuous landmark throughout the previous day's march. Ascending by a steep rocky path above the narrow gorge through which the much-eroded slopes drain southward, we arrived, half a mile farther on, at a small spring just below the steep NW. scarp of the mountain, at an elevation of about 4,800 feet. From there the ascent, made trying by the steepness of the slope and the masses of loose rubble covering it, leads up, as the sketch-plan in Pl. 51 shows, towards the northern end of the rugged crest. At a point about 400 feet above the spring our guide, an old herdsman familiar with the ground, first pointed out remains of a walled-up bridle-road which had once led up to the top. Higher up we came upon frequent traces of well-graded terraces over which this road had been carried. In places the outer revetment wall still stood to a height of about 8 feet.

Ruined stronghold of *Ghāla-kōh*.

Where this track, recalling the so-called 'Buddhist roads' across the Malakand and other passes into the Swāt valley, reaches a narrow terrace on the northern extension of the mountain top at a height of about 5,800 feet, we passed a small cistern, about 8 feet across, excavated from the red sandstone rock. From here the track zigzags up above precipitous cliffs to the rocky crest, and follows this right up to the northern wedge of the triangular top of the mountain. Along this last portion of the ascent the slope is thickly strewn with loose stones, the remains of disintegrated rough masonry. On the top, for which the aneroid indicated a maximum height of about 6,200 feet, the remains of ruined structures are found in three groups as shown by the sketch-plan in Pl. 51.

Approach to hill-top.

These structures are all composed of small rooms arranged mostly on a quadrangular plan. They are built throughout of rough stonework set in plaster of cement-like hardness. The best-preserved portion is a complex of quarters near the western angle of the area, i, comprising a number of rooms, from about 11 to 12 feet square, and a large rock-cut cistern within the court formed by them. The outer walls to the east and north are here intact to about 5 feet from the present ground level and show carefully arranged courses of masonry 1′ 8″ high, divided by layers of hard plaster 2″ thick. The thickness of the walls is 1′ 8″. In the court here, and also in other places, there were found hard-burnt bricks, 8–9″ square and 2″ thick, lying among the stone debris. They may possibly have served to collect and drain rain-water into the cistern. This is of oval shape, about 18 feet along its longer axis and 12 across. Its rock-cut sides were originally faced with cemented stonework and an outer layer of hard plaster. Its present depth does not exceed 7 feet, but is obviously reduced by the accumulation of debris. Smaller cisterns were traced also in two other places, ii, iii. A line of quarters stretching along the southern face of the top, iv, was less clearly traceable, perhaps owing to the steepness of the slope on which they were built. At the highest point the foundations of what appears to have been a square tower, v, could be made out. At the bottom of a small gully draining the plateau top to the NE., vi, a hollow, measuring about 21 feet by 15, has been excavated in the rock, probably for use as a reservoir to hold water. But as there is no masonry facing, this could never have been finished for use.

Ruined structures on *Ghāla-kōh*.

The very precipitous rock walls with which the mountain top falls off on all sides make Ghāla-kōh a natural fastness easy of defence. But the difficulty of access and still more the comparative rarity of pottery fragments to be found there suggest that it probably served only as a temporary place of refuge and not as a place of permanent occupation. I had occasion to make the same

Antiquity of stronghold.

observation in the case of Zamr-i-ātish-parast above.[1] No indication of date can be drawn from the pottery, since it is all plain, of a red clay; nor did I learn of any datable finds. But local tradition ascribes great antiquity to the site and alleges its identity with the Sipand-kōh mentioned in the Shāhnāma's story of Rustam.[2] I have not been able to verify this statement. The very solid construction of the walls and the far-advanced decay that they have nevertheless undergone seemed to point to considerable antiquity. Even were rainfall frequent, which it certainly is not in these barren hills bordered on the east by a wide desert belt, a long period is needed to reduce such cemented masonry to mere heaps of rubble.

View from hill-top.

The top of Ghāla-kōh commands distant vistas over the isolated peaks and ridges into which the range skirting from NW. to SE. is broken up at this end, and over the much-eroded slopes where side spurs have 'matured' into bare hummocky peneplains. A veil of dust haze, like that which I had seen so often lying over similar landscapes at the foot of the K'un-lun or the range above Kāshgar and Yārkand, hid the plains of ancient Drangiana far away to the east. If the atmosphere had been clearer, so my shepherd guide assured me, I could have sighted there those two westernmost affluents of the terminal lagoons of the Helmand, the Harūt and Farah rivers, whose ancient names *H'arenaṅuhaiti* and *Fradatha* (the *Pharnacotis* and [O]*Phrados* of Pliny) I had first traced as a young student in the Avesta.[3] Since Afghānistān was by the decree of Fate to remain closed to me, it was a satisfaction to have at least been able to approach so near to a region which from early days had interested me. The whole landscape under that grey pall bore a very desolate look. Yet abundant grazing was said to be found on those bare slopes for a short while, if there had been adequate rain in the spring. Snow, I was told, usually lay for two weeks or so each winter on the top of Ghāla-kōh.

Descent into Sīstān basin.

On November 28th we resumed the journey towards Sīstān. Two long marches, in the course of which we covered some 65 miles, brought us to Bandān, where we struck the high road coming from Birjand. All the ground crossed was desert; but before the route left the wide level valley below Duruh to ascend over a gently sloping gravel glacis to the down-like plateau on which are situated the wells of Khwāja-i-dū-chāhān, I was interested to note a large flat area of hard-baked clay with marks of shallow water channels. Cultivation is carried on here in patches on occasions when exceptional rainfall in the spring causes floods to spread over this tract and to soak it for a time. It is exactly in this manner that intermittent cultivation is practised on inundated ground within the riverine belt of the lower Tārīm below Shahyār.[4] The broad valley down which the track led from the wells of Dū-chāhān, with its dry sandy stream-bed, tamarisk-cones, and patches of ground scoured by wind-erosion, had made me feel as if I were once more in the Tārīm basin. So the change to the groves of date palms lining the flood-bed which the road follows for the last few miles down to Bandān was all the more striking. Together with the warm night passed at this desolate roadside hamlet it brought home the comparative vicinity of Sīstān to India and the shores of the Arabian Sea.

March to shore of *Hāmūn*.

Yet our march of November 30th, which brought us over a vast fan of detritus and gravel down to the shore of the Hāmūn, the great terminal basin of the Helmand, was of a kind to bring back vivid memories of a familiar desert region of innermost Asia. For the ground over which we travelled here for more than 32 miles was just like that over which the approach lies to the shores

[1] See above, ii. p. 870.

[2] Cf. Nöldeke in *Grundriss der iran. Philologie*, ii. p. 168, where the Avestic hill-name *Spentōdāta*, Yt. xix. 6, is referred to.

[3] Cf. my paper on 'Afghānistān in Avestic Geography', *Academy*, May 16, 1885, p. 349; *Indian Antiquary*, 1886, p. 22.

[4] See above, ii. pp. 819 sq. I may note here that our Duruh guide talked of an old site, apparently of the 'Tati' type and known as *Shīr-kōha*, which he placed 'about two Farsangs' to the SE. of the area above mentioned.

of the ancient Lop Sea, whether from the glacis of the K'un-lun or from the barren slopes of the Kuruk-tāgh. The resemblance of the impressions was much strengthened by the succession of clearly recognizable ancient shore-lines which were passed on the descent to the actual edge of the northern portion of the Hāmūn at the post of Lab-i-Bāring. That the first of the old shore-lines I noticed lay fully 8 miles away from this point on the present western limit of the lake showed the shrinkage that the latter has undergone.

Of the fluctuations which the extent of the Hāmūn annually undergoes I could judge by visual evidence when on December 1st I made my final march to Nasratābād, the capital of the Persian portion of Sīstān. For after regaining the direct road marked by the telegraph line about a mile to the north-east of the ruined tower of Mīl-i-Nādir, it was possible for us to ride across that waist-like contraction of the Hāmūn which is regularly under water from early February till the autumn. During the few winter months, however, the shrinkage of the lake allows traffic to proceed here without having to be ferried across on reed rafts, as is necessary during the rest of the year. Thus for some ten miles we followed a narrow track winding through thick reed beds, just like those I well remembered in the riverine belt of the dying Tārīm and the westernmost lagoons of Lop-nōr. Large herds of cattle were grazing in what during the greater part of the year is a haunt of fish and water birds. Passage across *Hāmūn*.

On arriving where this 'Naizār' thinned out and gave place to a stretch of bare lake shore, I could not help being struck at once by a negative but very significant observation. I mean the total absence of that saline efflorescence which is so characteristic a feature of the ground near the Lop-nōr marshes and all the terminal river-courses of the Tārīm basin. It makes Sīstān differ greatly in the surface appearance of its soil from the vastly greater basin of Chinese Turkestān, which it otherwise resembles in many physical respects. This difference deserves to be briefly noted here for two reasons. On the one hand it must draw our attention at the outset to the important consideration that the Hāmūn marshes, which the Helmand delta, comprising the cultivable portion of Sīstān, adjoins on the east, do not form the true terminal basin of the river; for they are swept out and kept fresh by the drainage which large floods of the Helmand, recurring at intervals of several years, pass through them into the salt lake of the Gaud-i-Zirrah some sixty miles lower down in the desert. On the other hand this geographical fact helps us to understand better both the fertility of the soil in the Helmand delta and the great number of ruins attesting the former prosperity of Sīstān. Absence of saline efflorescence.

How little of that prosperity is now to be found in this land of ancient fame in Iranian tradition was made sufficiently evident by the neglected look of both fields and villages encountered during the remainder of the day's march from the Hāmūn to Nasratābād. There I was most kindly received by Major (since Lieutenant-Colonel) F. B. Prideaux, H.B.M.'s Consul for Sīstān and Kāīn. It was due mainly to most helpful and effective arrangements of this distinguished political officer that I was able to employ the comparatively short time at my disposal in Sīstān to the greatest profit on archaeological work. I had all the more reason to feel deeply grateful for the generous support and very encouraging personal interest that Major Prideaux accorded to my work, because it was rendered at a time when the uncertain political situation in Persia and the activities of a German Military Mission in power at Kirmān were causing serious preoccupations to those responsible for safeguarding a far advanced section of the border of British Baluchistān.

# CHAPTER XXVIII

## THE SACRED HILL OF SĪSTĀN

### Section I.—THE HISTORICAL INTEREST OF SĪSTĀN

Geographical importance of Sīstān.

The territory of ancient *Sakastanē*, the Sagistān of medieval Muhammadan writers, the modern Sīstān, had attracted me by its historical interest ever since the Old-Iranian studies of my youth. Geographical position has made Sīstān a link between Western and Eastern Īrān, and a corresponding mixture of ethnic elements, not unlike the one to be found there at present, is significantly reflected in the duplication of the forms in which its early indigenous name is presented by classical records.[1] Nature, by placing Sīstān on the main line of communication between Persia and the western marches of India, has invested it with an importance which, whether for peaceful trade intercourse or invasion, has asserted itself all through history and makes itself felt to the present day. Nature has given to Sīstān the fertilizing waters of the Helmand, the greatest river of Īrān south of the line which extends from the Hindukush to the Caspian, and has thereby provided resources which, if fostered by peace and efficient administration, would suffice to make the province the granary of central Īrān and the seat of a flourishing civilization.

Early historical references.

It is obvious that great interest must attach to Sīstān for the student of ancient Īrān, and extremely meagre as our extant records are for the earliest period of its history, they do not fail us altogether.[1a] Sīstān is duly named among the provinces of the Achaemenidian Empire both by Darius I and Herodotus.[2] Alexander passed through it on his march towards the border lands of India, and the varying forms of the name by which our chief source of the great conqueror's exploits, Arrian's *Anabasis*, mentions the territory and its people,[3] incidentally bring out the interesting fact that Sīstān lay then, as it does in a way now, on what may be called the linguistic watershed between Western and Eastern Īrān. The peculiar position of the territory in this respect is itself probably the result of an ethnic division accounted for by factors of physical geography, and is curiously reflected throughout its political history, as for instance by the modern division of Sīstān between Persia and Afghānistān.

Religious and epic traditions.

The importance attaching to Sīstān in the ancient civilization of Īrān is attested by the religious and epic traditions there localized since very early times. One of the most interesting sections of the extant Zoroastrian scriptures, Yasht xix of the Avesta devoted to the praise of the 'kingly glory', distinctly associates this sacred representative of lawful rule over Īrān with 'him

[1] The Eastern Iranian form which meets us as *Zranka* in the inscriptions of Darius is reproduced in the Σαράγγαι of Herodotus, the Ζαράγγαι of Arrian. Yet the latter knows also the Western Iranian form of Δράγγαι which appears in the *Drangianē* of Strabo, Ptolemy, and other classical writers. The Eastern Iranian form has survived in the medieval name *Zaranj* and in the modern designation of the *Zirrah* lake, derived from Avestic *Zrayō*, 'lake' (Old Persian *draya*[h]).

[1a] For a still useful synopsis of these and of early medieval notices, cf. Sir Henry Rawlinson's 'Notes on Seistan', *J.R.G.S.*, 1873, pp. 272 sqq.

[2] For an analysis of these references, cf. Dr. Thomas's instructive article on 'Sakastana', *J.R.A.S.*, 1906, pp. 181 sqq., where the question of the true origin of the designation of Sīstān as 'land of the Sakas', i. e. Scythians, is critically discussed.

[3] The fact of the forms Ζαράγγαι or Ζαραγγαῖοι (VI. 17. 3, 27. 3; VII. 6. 3) and Δράγγαι (III. 21. 1, 28. 1; VII. 10. 5) being indifferently used by Arrian suggests that those contemporary writers whose records he used heard both forms among the local population.

who rules from where lies the *Zrayô Kãçaoya* ', i.e. the lake of Sīstān.[4] Thus from the earliest period down to the great national epos of Firdausī, tradition has located the original home of the great legendary dynasty of Īrān, the Kavi or Kayanian kings, in Sīstān, and there to this day one of the old indigenous families, calling itself *Kayānī*, still proudly claims descent from them.[5] It is from the ' lake Kãçaoya ' of Sīstān that according to early Zoroastrian belief, as attested already in the Avesta, Astvaṭ-ereta, the victorious Saviour (*çaoshyant*), is to arise in the future to vanquish Ahriman, the spirit of evil, and to set free the world.[6] Equally significant is the fame which Sīstān claims in the epic lore of Īrān as the home of its most popular heroes, Zāl and Rustam, and as the chief scene of their great deeds.[7]

Scantiness of historical data.

There is a striking contrast between this comparative wealth and antiquity of Sīstān's traditional associations and the scantiness of the reliable historical data that have come down to us concerning the pre-Muhammadan period of its history. This is illustrated by the absence of any definite information about that important ethnic movement, the conquest of the Sakas or Scythians to which the territory owes its designation as Sakastanē or ' land of the Sakas ' first recorded by Isidoros of Charax in the time of Augustus.[8] All the more must we welcome the survival of abundant archaeological remains in this territory and the close knowledge of its geography and economic and ethnographic conditions that has been secured during recent times. This knowledge is chiefly the result of the prolonged and detailed investigations which the Perso-Afghān Boundary Commission sent to Sīstān by the Indian Government under Colonel Sir Henry McMahon carried out in the Helmand delta during 1903–5. Of the abundant materials then collected only a portion has as yet been published in a form accessible to the public. But the accurate large-scale surveys then made under the direction of Mr. G. P. Tate, of the Survey of India, and the accounts of the country and its people recorded by Sir Henry McMahon and his staff have provided the geographical student of Sīstān with materials more ample perhaps than those at present available for any other part of Eastern Īrān.[9]

Knowledge of modern Sīstān.

Abundance of ruins.

With regard to archaeological remains, it deserves to be noted that the abundance of ruined sites to be found in the different parts of the Helmand delta is the direct result of physical conditions strikingly similar to those exhibited by the Tārīm basin on a much larger scale. Great aridity of the climate has favoured the preservation of remains wherever the soil has at one time or another ceased to be cultivated or occupied. Changes in the main river-course, such as are inseparable from deltaic conditions, have at different periods greatly affected the position and extent of the cultivated area, wholly dependent as this is on irrigation from canals of the Helmand. Such

[4] See in particular Yasht xix. 66 sq. ; cf. also the designation of Haētumant, i.e. the Helmand territory, as ' possessed of the kingly glory ' (*h*ᵛ*arenah*, Persian *farr*), in Vend. i. 13 ; Yasht xix. 39.

In my paper ' Afghānistān in Avestic Geography ' (*Academy*, May 16, 1885, pp. 348 sq. ; *Indian Antiquary*, xv. p. 22) I have identified four of the rivers which the passage immediately following Yasht xix. 66 mentions along with the Helmand, the *H*ᵛ*āçtra, Hvaçpa, Fradatha*, and *H*ᵛ*arenahaiti*, as the present Khāsh, Khuspās, Farah, and Harūt rivers all flowing into the Hāmūn from the north. This proves the familiarity of the composer of that Avestic text with the hydrography of Sīstān.

[5] Cf. Tate, *Seistan*, pp. 1, 280 sqq. and *passim*.

[6] Cf. Vend. xix. 5 ; Yasht xix. 92 ; Bartholomae, *Altiranisches Wörterbuch*, p. 471.

[7] Regarding the localization of these great heroes of Firdausī's Shāhnāma and the origin of their legends, cf. Nöldeke, ' Das iranische Nationalepos ', in *Grundriss der iran. Philologie*, ii. pp. 138 sqq.

[8] The suggestion that this conquest resulted from the migration of the *Sai* or Sakas (?), whom the Ta Yüeh-chih had driven from their seats east of Farghāna in the first half of the second century B. C., appears to have been first made by von Gutschmid, *Geschichte Irans*, p. 78 ; for doubts indicated by Dr. Thomas, see *J.R.A.S.* 1906, p. 189.

Regarding the *Sai* 塞 and the correct reading of their name as recorded in the Han Annals, cf. now de Groot, *Chinesische Urkunden*, ii. p. 25.

[9] See McMahon, ' Seistan Past and Present ', *Geogr. Journal*, 1906, pp. 209 sqq., 333 sqq., 522 sqq. ; Tate, *Seistan, a Memoir on the History, Topography, Ruins and People of the Country*, Calcutta, 1910.

changes are proved, as regards the earlier periods, by the situation of ruins on ground now abandoned to desert or marsh, and as regards more recent times by actual records or local tradition.

Effects of wind-erosion.

At the same time wind-erosion aided by the movement of drift-sand has been and is still at work, exactly as in the Lop basin, wherever alluvial land once inhabited has been for a long time deprived of protecting vegetation. The destructive effect of this wind-erosion upon structural remains situated on such ground can be seen in the southern portion of the deltaic area almost as clearly as at ancient sites in the Taklamakān. But, just as in the latter region, they also help the archaeologist by laying bare relics of early periods on the very surface, after the fashion illustrated by the 'Tati' sites of Chinese Turkestān. To make the parallel between the deltaic areas of the great Central-Asian basin and Sīstān still closer we find in the latter, too, that portion of the ancient lake bottom which in historic or prehistoric times has seen human occupation, surrounded and in places broken up by terraces of hard clay, mostly gravel-covered, 'witnesses' of an earlier lacustrine level. It is on these, just as along the terminal course of the Su-lo-ho, that we may expect structural remains to survive protected both from moisture and from wind-erosion.

Field for archaeological research.

These rapid notes will suffice to show how historical past and geographical features combine to make Sīstān a very promising field for antiquarian research. The exceptional opportunity which the prolonged stay and special facilities of the British Sīstān Mission of 1903–5 might have offered for a systematic archaeological survey of the whole area on both sides of the border could not be utilized in the absence of a qualified archaeologist. Nor was it open to me to attempt this within the limited time available for my work and in view of the fact that access to the Afghān portion of Sīstān, which contains the majority of sites abandoned to the desert, proved unobtainable.

Work of Mr. G. P. Tate.

Fortunately Mr. G. P. Tate, whom previous work had made familiar with the adjacent region of British Baluchistān and who was interested in the history of Khorāsān, was encouraged to use the opportunities offered by his topographical duties to visit most of the ruins within range of the Mission's operations. He diligently endeavoured to collect and record in his *Seistan* such information, usually scanty enough, as could be gathered about the more conspicuous ruins from local tradition and late Muhammadan records. This information, supplemented by general descriptions of the ruins, is helpful as regards the remains of later sites; but there, too, as well as in respect of points of historical topography, it often calls for more critical treatment. Allowing for such limitations, Mr. Tate's work, illustrated by a number of excellent photographs, represents a very praiseworthy effort to aid the study of Sīstān's past. The indications furnished by it were of distinct help in gaining a bird's-eye view, as it were, of the principal sites which called for examination. For this and the very valuable guidance derived from the accurate mapping done under his supervision I wish to express here my grateful appreciation.

Account limited to sites surveyed.

A variety of considerations oblige me to restrict myself here to an account of the sites and remains actually surveyed. The fact that I was unable to visit the Afghān portion of the territory and the comparative shortness of my stay on the Persian side, together with present limitations of time, do not permit me to treat the important bearing that the physical geography of Sīstān has had upon its political and cultural history. Nor can I attempt to discuss questions of historical topography, since access to the necessary textual sources and time for their study are both lacking. For similar reasons I must leave it to others to derive from the comparison of architectural details or objects found elsewhere in Īrān such assistance as may be possible towards the determination of the chronology of ruins and other remains in Sīstān. I am fully aware that substantial progress in the elucidation of the antiquities of this as of other parts of Īrān must depend on systematic excavations. Destructive 'treasure-seeking' is not unknown among the ruins of Sīstān. Hence it is all the more desirable that the country which enjoys special treaty rights

455. RUINS OF GHĀGHA-SHAHR AND KOK-I-ZĀL, KŌH-I-KHWĀJA, SEEN FROM EAST.

456. RUINED SITE OF GHĀGHA-SHAHR, KŌH-I-KHWĀJA, LOOKING EASTWARDS FROM ROUTE TO HILLTOP.
Reed-covered marshes of Hāmūn seen in distance.

to archaeological excavations on both sides of the Perso-Afghān border may soon be able to extend the activity of its scholars to the rich field reserved in Sīstān. It only remains for me to add that it will be convenient in dealing with this region to disregard the chronological order followed elsewhere in recording my labours and to treat the remains surveyed by me according to topographical grouping.

## SECTION II.—THE REMAINS OF KŌH-I-KHWĀJA

On December 6th I left the hospitable roof of the Sīstān Consulate at Nasratābād for Kōh-i-Khwāja, and passing next morning beyond the village of Daudi over flat uncultivated ground liable to inundation, arrived at the edge of the Hāmūn where it faces the rock island of Kōh-i-Khwāja (Fig. 473). My reason for visiting the ruined site to be found there first was that this conspicuous hill, rising in complete isolation more than 400 feet above the central portion of the Hāmūn marshes and the level expanse of the Helmand delta, bears on its top much-frequented Muhammadan shrines which form the object of regular pilgrimages. Its sanctity is marked by its very name, the 'hill of the Saint', i. e. 'Alī. The very striking natural features of this hill, rising as it does in the very centre of a wide lacustrine basin, were calculated to attract local worship from early times, and belief in the tenacity of such worship suggested antiquity for the ruins. Hill of Kōh-i-Khwāja.

The hill of Kōh-i-Khwāja is separated from the western edge of the alluvial plain by a stretch of reed-covered marsh, about a mile across in the winter season of low water but probably much wider later in the year. The elevation of the shore as recorded by the survey near this point, 1,600 feet, is so low that the position occupied by the hill is likely to have been an island for a very long period in the past. Its ruined site is mentioned as an island stronghold in the Hāmūn by a Muhammadan chronicle of Herāt, in connexion with events of the 15th century A. D.[1] The summit of the hill forms a rock-girt plateau (Fig. 475) extending, as the sketch-plan, Pl. 52, shows, for over a mile from NE. to SW. and not much less across. For about 150 feet the cliffs below the plateau edge fall off with great steepness (Figs. 458, 463, 473), while lower down their foot is hidden in easier talus slopes stretching to the narrow fringe of salt-encrusted foreshore. At the south-eastern end of the hill a narrow ridge (Fig. 455) tails off from below the ruin-crowned knoll of Kok-i-Zāl; on the terraced slopes of this ridge stand the ruins of the site usually known as *Ghāgha-shahr*, the 'town of the Ghāgha'.[2] Rock-girt hill forms island.

Steep ravines separate the ridge both on the west and east from the adjacent slopes of the hill and account for the choice of this position as a place capable of defence. The main circumvallation, as seen in the sketch-plan, Pl. 52, is built, like the structures within, of sun-dried bricks, and encloses an area measuring about 170 yards from N. to S. and about 130 yards where it is widest. Where this area narrows in its highest portion, it reaches close to the foot of the cliffs crowned by the walls of Kok-i-Zāl. An outer enclosure, of much weaker construction, appears to have stretched from the foot of the cliffs in a semicircle round this walled area at a distance varying from about 160 to 100 yards. But this has badly decayed and is traceable only on the south and south-west; scarcely any structural remains are found between it and the main walls.[3] These show a thickness nowhere less than 8 feet and, where they ascend the slopes, are built on foundations far more massive. They rise in places still to 30 feet or more. The bricks, like those in most of the large Circumvallation of Ghāgha-shahr.

[1] See Tate, *Seistan*, p. 267.

[2] This is the form of the name as I heard it. Mr. Tate, *Seistan*, p. 265, spells the name as *Kakha* or *Kak-hā* and connects it with that of a section of the Farsiwān, the supposed autochthonous population of Sīstān; cf. *ibid.*, pp. 281, 295.

[3] See the rough plan, Pl. 53. The measurements shown in this plan, owing to the difficulties presented by the ruined condition of the buildings, their extent, &c., must be treated as only approximate. Of the circumvallation in particular no detailed survey was practicable within the available time.

structures within this circumvallation, are of great size, from 22" to about 17" long, 15" to 12" wide, and of an average of 4–5" in thickness. The main lower gate appears to have stood near the south-eastern corner (Fig. 459), where two towers, one octagonal and another round and very slender, were evidently intended for its protection.

Ruined quarters on lower slope.

Within this wall the lower slope on the south is covered with remains of vaulted rooms and passages, occupying irregular terraces and often apparently built in tiers. Debris and refuse here fill the lower rooms, many of which were probably abandoned while the place was still occupied, as described in the case of Tabbas-i-Mazena. A little experimental digging in one place showed that, under a surface crust of hard salt-permeated clay, midden refuse was still well preserved. From the first I was struck by the abundance of potsherds showing fine red clay and a make greatly superior to the present ware of the country. Most common among these were pieces of terra-cotta-like quality with the outside surface ribbed in neat regular bands, of the type shown by the specimens Gha. 02, 7, 8 (Pl. CXV).[4]

Ascent to high terrace and gateway.

Through this agglomeration of ruined quarters of a humbler sort a still recognizable roadway winds up to the foot of a high wall supporting a terrace (Fig. 460). Behind this very massive wall the terrace rested on vaulted rooms probably in several stories; all of these appear to have fallen in long ago, as shown by hollows on the top. The road ascending along the foot of the terrace passes through a narrow gateway into a kind of outer court enclosed by comparatively well preserved vaulted structures. The vaults here are constructed with those slanting arches of brickwork which are still ordinarily used in Sīstān for spanning rooms of moderate size without the use of any centering. From this court the road turns back along the top of the terrace, some 40 yards long, until it reaches near its western corner the imposing arched gateway seen in Fig. 465. This appears to have been surmounted by battlements, and is flanked above by narrow openings, which seem as if intended for use as a kind of machicolation. To a small vaulted passage, i, built against the wall to the left of the gate I shall have to return farther on in connexion with an interesting discovery made there.

Vaulted entrance hall.

Through this gate access lies into an open inner court, measuring about $24\frac{1}{2}$ feet by $14\frac{1}{2}$, and from this through a passage into a vaulted entrance hall. As this is better preserved than the rest of the structural remains around the great inner court and shows some characteristic architectural features, a brief description will be useful. The entrance hall, ii, consists, as the plan, Pl. 53, shows,

[4] Typical specimens are described by Mr. Andrews as follows:

**Gha. 01. Fr. from wall of pottery vessel.** Wheel-made; dark grey-brown, unglazed. Incised pattern; near one edge, a pair of annular lines with, between edge and lines, band of elongated almond-shaped depressions slightly oblique and hatched transversely with raised lines. $2\frac{1}{4}'' \times 4\frac{1}{2}''$.

**Gha. 02–4, 06–8. Frs. of pottery vessels.** Wheel-made; various shades of terra-cotta. All strongly and approximately regularly ribbed horizontally on outer surface, and some, more faintly, ribbed internally. The ribs constitute a definite style of ware, and are apparently made with a short-toothed tool in which the teeth (forming the grooves) are rounded, and the spaces sometimes rounded and sometimes square. The number of ribs is approximately four to the inch, but 07 has broad rounded channels with only a rounded ridge between. In this case four ridges occupy $1\frac{1}{4}''$. *07*, washed over with more ferruginous clay of a fine rich red colour. Gr. fr. $3\frac{1}{4}'' \times 3\frac{1}{2}''$. Pl. CXV.

**Gha. 09, 014, 015. Frs. from rims of pottery vessels.** Wheel-made, terra-cotta. 09, probably bulbous, with bands of slightly raised and burnished lines on shoulder and neck. Short neck curves in, and then rolls slightly outward and then again inwards, tucked under outward rolled rim. $1\frac{1}{2}'' \times 2\frac{3}{8}''$. *014*, $5\frac{1}{4}'' \times \frac{3}{4}''$. *015*, rim thick, rounded on upper surface, and outer edge regularly nicked (cable?). $3\frac{1}{4}'' \times \frac{7}{8}''$.

**Gha. 010, 011, 012. Frs. of pottery vessels.** Wheel-made; terra-cotta washed with richer red. *011* shows double curve in its height, faintly ribbed horizontally inside and out. $2\frac{5}{16}'' \times 1\frac{1}{2}''$. *010*, *012*, faintly ribbed inside and with band of 15 thin burnished lines near one edge, and a few carelessly drawn lines near opposite edge. $2'' \times 3''$. Pl. CXV.

**Gha. 013. Fr. from wall of pottery vessel.** Wheel-made; terra-cotta. Surface weathered. On outside a pair of raised bands, one broader than the other, and nicked (pearls or 'nail' orn.). $1\frac{3}{4}'' \times 1\frac{5}{16}''$.



457. RUINS OF GHĀGHA-SHAHR, SEEN FROM KOH-I-ZĀL.



458. RUINED TERRACE AND STRUCTURES ON NORTH-WEST SIDE OF QUADRANGLE, GHĀGHA-SHAHR.
Cliffs below Koh-i-Zāl seen in background.



459. SOUTH-EASTERN CORNER OF CIRCUMVALLATION, GHĀGHA-SHAHR.
Gate towers on right.



460. SUPPORTING WALL AND GATE OF OUTER COURT, GHĀGHA-SHAHR.



461. RUINED STRUCTURES ON WEST SIDE OF TERRACE ABOVE QUADRANGLE, GHĀGHA-SHAHR.
Vault in foreground gives access to corridor ii.



462. REMAINS OF UPPER STORY APARTMENTS ON NORTH-EAST SIDE OF QUADRANGLE, GHĀGHA-SHAHR.



463. BUTTRESSED TERRACE ON NORTH-WEST SIDE OF QUADRANGLE, GHĀGHA-SHAHR.



464. RUINED STRUCTURES ABOVE QUADRANGLE, GHĀGHA-SHAHR, SEEN FROM SOUTH.

of a domed central portion and two aisles. The dome of the central portion rests on arches which spring from abutments, measuring 3' 9" by 2' 6". These arches, like the vaultings of the aisles, are built of rows of bricks set on edge, their longer sides lying along the curvature of the arch. As in the Western type of true arch there is a keystone. Masonry courses rising to 1½ feet above the top of the arches form an oblong, and this by means of squinches in the corners is reduced to an octagon; on this rests the dome, with four openings, much broken, for admitting light. The two aisles, which have a length of 10½ feet and a width of 5' 8", carry barrel vaults, which above the longer side have an apsidal ending (Fig. 471). Recesses, 4 feet wide, are placed in the wall at both shorter ends. A narrow plinth runs along all wall portions at a height of about 9' 6" from the floor, and above it are arranged series of niches, about 15" deep and 2½' high, three along the longer side and two above the recess on the shorter sides. In the better preserved of the 14 niches there could be traced plaster bases about 8" high and 10" deep. The height of the niches above the floor seems to preclude any other use of these bases than to carry small images. But no remains of such could be traced when the refuse covering the ground was cleared in two of the corners, the only finds being fragments of turquoise-glazed pottery and of some textiles in wool and silk.[5]

Structures around quadrangle.

From this hall a narrow passage leads to an open quadrangle of imposing size. It is enclosed on three sides by the much-decayed walls of large vaulted apartments, and on the fourth, on rising ground, by a high terrace supported by buttresses and bearing more structures on its top. The buildings on the two longer sides of the quadrangle may well have had two stories; but their walls are badly decayed, and owing to the debris filling the ruins only the roughest sketch of their disposition was practicable in the plan Pl. 53. A better idea of them can be gained from the photographs (Figs. 456, 457), which show the whole complex of ruins in the upper portion of the walled area as seen from the slope of the hill behind. The high detached masses of masonry on either side facing each other (see also Fig. 464) form a curious feature. Their slope towards the court is too steep to suppose that they could have carried stairs, and the idea suggests itself that they might be later additions meant to buttress structures behind. The great dimensions of several apartments, especially on the north-eastern side, where two, *c* and *d*, measure not less than about 79 feet by 16 and 42 feet by 26, clearly show that accommodation for large numbers was intended. But there is nothing in the structure to indicate whether such accommodation was needed for the fortified seat of a chief or perhaps to meet the requirements of a populous sacred establishment.

Terrace wall with buttresses.

The terrace forming the north-western side of the quadrangle rises some 20 feet above the level of the latter. Buttress walls divided by narrow vaulted recesses in two stories (Figs. 458, 463) have been built to support it and counteract the outward thrust of the structures built above. The irregular arrangement of these buttresses at once suggested successive repairs and alterations, and an interesting discovery behind the outer masonry of one of the buttresses subsequently confirmed this. From one of the vaulted recesses, *e*, a passage now blocked by debris appears to have given access to the vaulted galleries which carried the terrace in front of the structures occupying

[5] **Gha. ii. 01. Fr. of wall of pottery vessel.** Hand-made; pale terra-cotta; prob. from large bowl. Glazed inside turquoise, and painted blue-black, a spiral with three leaf-shaped brush-marks outside. 3¾"×5"×¾". Pl. CXVIII.

**Gha. ii. 02. Fr. of wall of pottery vessel (bowl?),** pale red. Glazed inside turquoise with broad black brush stroke. Glaze mostly flaked off. 3"×2½"×¾".

**Gha. ii. 03. Fr. of strong woollen (?) fabric;** prob. from shoe sole. Plaited in such a manner as to form longitudinal ribs at intervals. 4"×3".

**Gha. ii. 04-7. Frs. of woollen textiles and yarn.** *04*, strip of pale blue plain cloth. 6"×1". *05*, bunch of thin woollen yarn, white. *06*, frs. of fishing (?) net of ¾" mesh; stained brown, prob. from use. *07*, small fr. of woollen felt, encrusted with mud.

**Gha. ii. 08. Fr. of silk cloth.** Plain weave in coloured stripes; pairs of dull brown lines with buff between each pair. In space of $\frac{5}{16}$" between pairs, a central band of pale pink, and band of pale blue on each side. C. 4"×1¾".

**Gha. ii. 09. Fr. of pottery vessel.** Wheel (?)-made; terra-cotta. Glazed dark turquoise inside. 2"×¼".

the higher ground. Between the two middle buttresses the position of a stairway 8 feet wide leading from the quadrangle to the terrace can be clearly made out.

Central structure on terrace.

On the line marked by the stairway rises the central structure of the upper group of ruins, v (Fig. 463). Its importance is marked by its position and certain peculiar structural features. Unfortunately it has suffered great decay, and without careful clearing its character could not be determined with certainty. Through a wide porch a kind of anteroom over 40 feet long is entered, and from this a cella-like apartment, about 22 feet square. This appears to have been spanned by a dome resting on four wide arches, as suggested by what remains of the abutment walls in the four corners. A passage, 4½ feet wide, on three sides of the 'cella' and accessible from the anteroom at first looked as if intended for circumambulation. Behind the cella there are ranged several oblong apartments extending right up to the circumvallation; on the left or western side a narrow passage separates the latter from the complex just described.

Stucco relievos on outer walls.

On the outside of the massive wall, *g*, with which the anteroom faces the terrace in front, my attention was attracted by small tamarisk pegs, 5–6" long, sticking out in irregular rows. Recollection of the use made of such pegs in the plaster friezes of shrines at the Ming-oi of Shōrchuk[6] and at other Buddhist shrines of the Tārīm basin made me think that here, too, they may have served to support stucco relievos. Repeated inspection from farther off and in favourable lighting soon revealed remains of such relievos actually surviving higher up on this wall, and also on the face of the enclosing wall *h* where it faces the terrace on a line parallel to the former. The stucco figures, executed in flat relievo, have all greatly suffered by rain and exposure. Yet the outlines were brought out by the shadows when the sun stood high, and permitted confident interpretation and also photographic record (Fig. 466). On the wall *h* there could be recognized three figures on horseback in procession all turned to the left. Very little was left of the riders' figures above the waist. But much of the bodies of the horses and their heads survived, as seen in Fig. 466. The horses show distinctly the same heavy short-necked type that we know from the Sasanian rock sculptures[7] and thus furnish a valuable chronological indication. Their bodies are about 8 feet above the terrace level and measure about 3½ feet from the back to beneath the belly. Lower down, about 5 feet from the ground, rows of holes mark the position of a frieze, about 1' 2" wide, which has completely disappeared. On the wall portion marked *g* I could recognize a similar rider and horse turned to the left, and in front the figure of a lion, almost erect, jumping at the horse's head. The stiff attitude and modelling of the beast looked to me distinctly reminiscent of the style in which corresponding hunting scenes are represented in Sasanian rock sculptures and even earlier in Achaemenidian relievos.[8] The extant portion of the lion measured about 4½ feet and the horse's head about 2' 3". These characteristically Sasanian figures on the walls of the central structure of the whole ruined site would by themselves suffice to establish its pre-Muhammadan origin.

Relievo figures of horses.

Smaller domed apartments.

This lends additional interest to the constructional features observed in the cella, iii, which occupies the western corner of the terrace (Fig. 461). They are typical also of some other small vaulted apartments found in a more decayed condition in the upper portion of the site. Four massive abutments projecting from the alignment of the walls carry semicircular arches. The masonry resting on the arches reaches to a height of about 1½ feet above the extrados. By squinches in the corners the square plan of the cella is converted into an octagon, over which rose the circular drum now destroyed. Square holes found on the sides of the abutments and also in the corners of the masonry above the arches probably served for the insertion of beams intended to counteract the thrust due to the dome. One such small vaulted cella, vii, adjoins the gate chamber, vi, at the

[6] See *Serindia*, iii. pp. 1191 sqq.

[7] See, e.g., Sarre, *Kunst des alten Persien*, Pl. 70–74.

[8] See *ibid.*, Pl. 17.

northern corner of the circumvallation. Here the plastered wall surface in places showed traces of having once borne decorative painting in tempera; but designs were no longer recognizable. The area along the enclosing wall, where it turns from the gate south-eastwards, was found covered with debris apparently of small quarters, and the walls seen in Fig. 462 farther towards the NE. side of the quadrangle are partly those of upper story apartments built above others now completely buried.

Columns with Doric capitals behind buttresses.

There remains a small but very interesting architectural feature to be mentioned. I have already referred to obvious indications that the buttresses built against the terrace wall were later additions. I had observed traces of painted plaster on what obviously was part of the original wall under the arch behind the second buttress on the right of the stairway. On removing the rough masonry at the top of this buttress and arch there came to light the Doric capital on the top of a semi-engaged column, both cased in plaster (Fig. 472; Pl. 54). For the upper and lower mouldings of the capital burnt bricks had been used. The buttress next to the right was also found to hide a column and capital of the same order, and on the wall between them there appeared remains of an architrave decorated with volutes in white stucco. Much of this relievo decoration had been destroyed by wasps' nests, the careless masonry of the later buttress not having offered adequate protection. But even thus these scanty remains of unmistakably Hellenistic style offer definite support for the chronological conclusion drawn from the relievo figures above described.

## Section III.—REMAINS OF MURAL PAINTINGS

Discovery on wall of passage Gha. i.

If I have left the account of two striking discoveries of pictorial remains to the last it is because the preceding survey of the ruins, summary as it must be, will make it easier to judge of their import. They were made on the very day following my first visit to the site and were largely the cause of the prolongation of my stay there till December 17th. I have referred before to a narrow vaulted passage, i, which, as the sketch-plan, Pl. 53, shows, was built against the wall close to the left of the main gate of the inner enclosure. Fig. 465 shows its position after removal. In the western corner of this passage, only 5 feet wide, one of the men who had come with me from Daudī village had noticed some coloured plaster showing through a crack in the wall. On removing here a little of the rough masonry, a piece of older wall surface behind was disclosed. It showed what I recognized, rightly as it proved, to be the representation of a figured textile. Next morning I had the vaulting of the passage carefully removed in order to be able in safety to examine the surface hidden behind the side wall nearest to the main gate. As soon as a top portion of this side wall nearest to the corner had also been taken down, the legs of a richly dressed figure were revealed. When we proceeded to loosen further the brickwork, only 14" in thickness, most of it became detached and collapsed. The effect was striking. Higher up there was seen a procession of richly dressed figures painted in tempera and preserved up to the waist; exposure above the later passage wall had effaced the rest. Below, in a separate frieze, appeared some haloed heads. The whole wall decoration, incomplete as it was and poorly preserved, yet at once recalled the arrangement of the frescoed friezes on the passage wall of the shrine M. v at Mīrān.[1] When subsequently the remaining portion of the later brickwork was carefully lifted off, a group of four haloed figures with remains of a fifth (Fig. 468), extending over a length of about 11 feet, came to light on the lower frieze.

Removal of wall-paintings.

From the first it was evident that the painted wall surface, owing to the effect of atmospheric moisture and still more to the destructive action of insects, probably white ants, on the mud plaster, was in a far worse state of preservation than the mural paintings of Buddhist shrines in Chinese

[1] See *Serindia*, i. pp. 517 sqq.

Turkestān. A single fall of rain, such as Sīstān regularly experiences on one or two occasions during the winter months, would suffice to destroy these interesting relics of pre-Muhammadan mural paintings, the first, I believe, ever brought to light in Īrān. Removal was obviously the only means of preserving what could be saved of them. The technical difficulties of this task were considerable, owing to the very friable condition of the mud plaster and the ease with which flakes of the painted surface detached themselves. After the necessary implements and materials had been improvised from such resources as the Consulate could offer, the removal in twelve panels of all that remained on this wall was systematically carried out by Afrāz-gul and myself on the lines successfully followed by us at Turkestān sites. But I was well aware that the packing and long transit to India was bound to cause some further deterioration, while it was improbable that without expert help the paintings could be adequately reproduced on the spot. Hence I prepared notes of the paintings as they presented themselves on the wall, and their record here may prove useful even for those who may after reading them be able to examine the originals at New Delhi, as set up by Mr. Andrews' skilful and experienced hands. [Additions and modifications, as now suggested by Mr. Andrews from a careful examination of the panels, are inserted within brackets.]

Remains of figures in upper frieze.

The extant portion of the upper frieze is about 3 feet high and reaches to a height of about 8 feet above what appears to have been the floor level. Apart from the fragmentary indication of a dark red-brown tunic on the extreme left it shows five variously dressed male figures facing to front and preserved approximately up to their waists.[2] The first from the left wears a wide purple tunic decorated with yellow circlets, obviously marking a figured (silk ?) textile of the usual 'Sasanian' spot pattern. From the middle of the waist there descends [from a narrow white girdle] an angular piece of white fabric, wider below than above, closely corresponding to the triangular pleats seen in the same place in the dress of the Dvārapāla statues of the Rawak Stūpa court,[3] and to the flap hanging from the girdle of a mailed warrior figurine from the Ming-oi of Shōrchuk.[3a] [There are traces of loose white trousers below the tunic and of a white cloak (?) on each side.] All the rest is lost. The second figure is dressed in a red tunic. The legs are cased in high white boots or perhaps felt mocassins over which laces of red and yellow cord are diagonally passed down to the ankles and apparently fastened to sandals. Behind the tunic there is seen part of an animal's yellow skin [with the white of the fur showing next the tunic and at the edges], and a paw showing white claws dangles on the right. The dress of the third figure consists of a light red tunic with contours of ample folds drawn in white, and below this of baggy yellow trousers or Dhōtī-like leg covering tucked into white boots. [There seems to be a light green cloak showing on the right.] The portion below the knees is badly effaced. The fourth figure shows traces of a dark brown or pink coat above a white tunic. On the tunic is shown a pattern of yellow spots, curiously resembling the flowers represented as floating in the air in the wall-paintings from a cave-shrine at Bezeklik.[4] [Dark red trousers spotted with the same pattern appear below, tucked into yellow top-boots.] Of a badly damaged fifth figure on the extreme right only the yellow tunic

[2] [Mr. Andrews has furnished me with the following general note on the costumes of these figures:

'The costume of the six figures of the upper register resembles that of the standing silver statuette in a Berlin Museum (Sarre, *Die Kunst des alten Persien*, Pl. 43), the only difference being the absence of top-boots in the statuette. The same tunic is worn by Khosrōes in the sculpture on the left wall of the large grotto at Taq-i-Bostān (Sarre, Pl. 89). In this the cloak is absent, and the legs are hidden by the sides of the boat in which the king stands. A similar costume, *plus* top-boots but without cloak, is shown on an embossed gold plaque from the Oxus Treasure in the British Museum (Sarre, Pl. 42). The same costume including cloak appears on many of the Kushana coins.']

[3] See *Ancient Khotan*, i. p. 495; ii. Pl. XIV c.

[3a] See *Serindia*, iv. Pl. CXXXV, Mi. xii. 0017; also cf. von Le Coq, *Bilderatlas*, Fig. 56.

[4] See von Le Coq, *Bilderatlas*, Fig. 128. Portions of the mural paintings from the same temple have been brought to New Delhi.

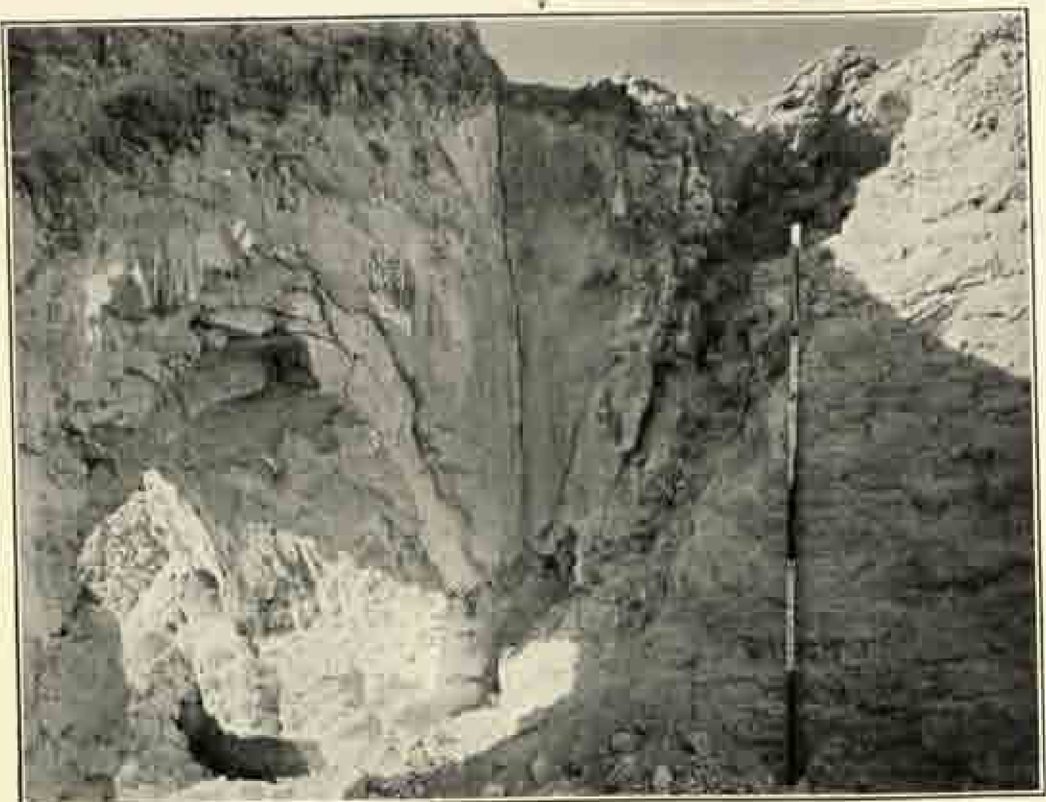
[To Mr. Andrews the pattern suggests a stylized and rapid rendering of a fire-altar (?).]



465. INNER GATE LEADING TO QUADRANGLE, GHĀGHA-SHAHR.
On left of gate is seen the position where passage i stood.



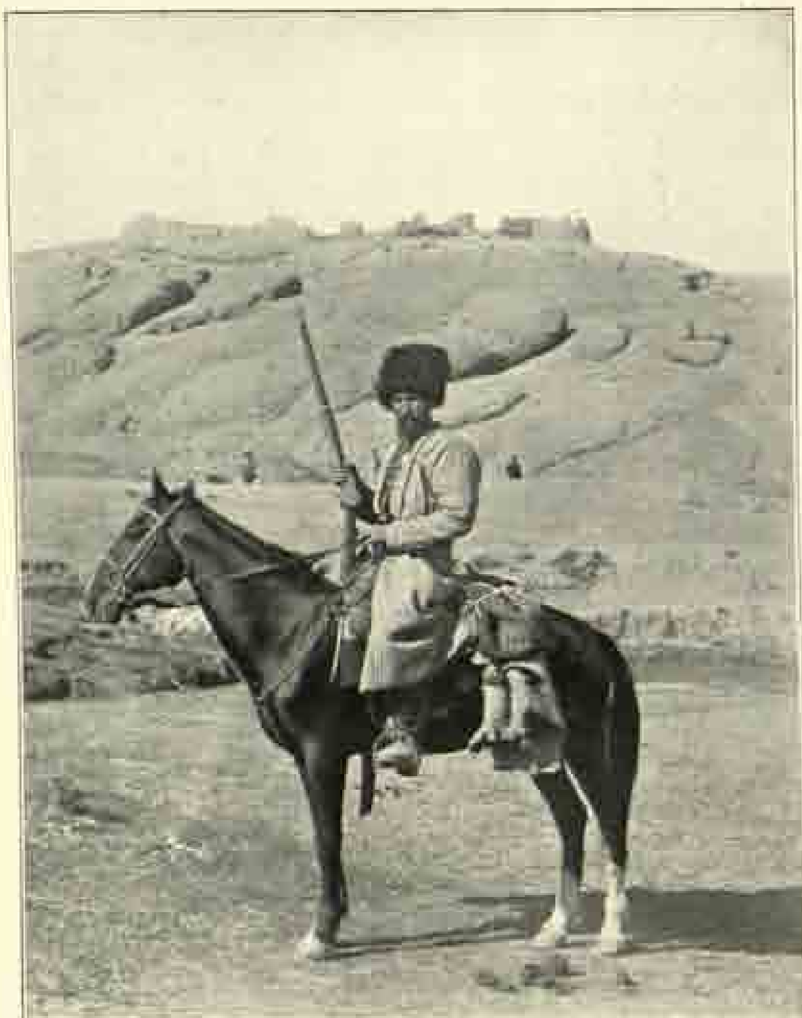
466. REMAINS OF PLASTER RELIEVOS ON OUTER WALLS OF STRUCTURE v, GHĀGHA-SHAHR.



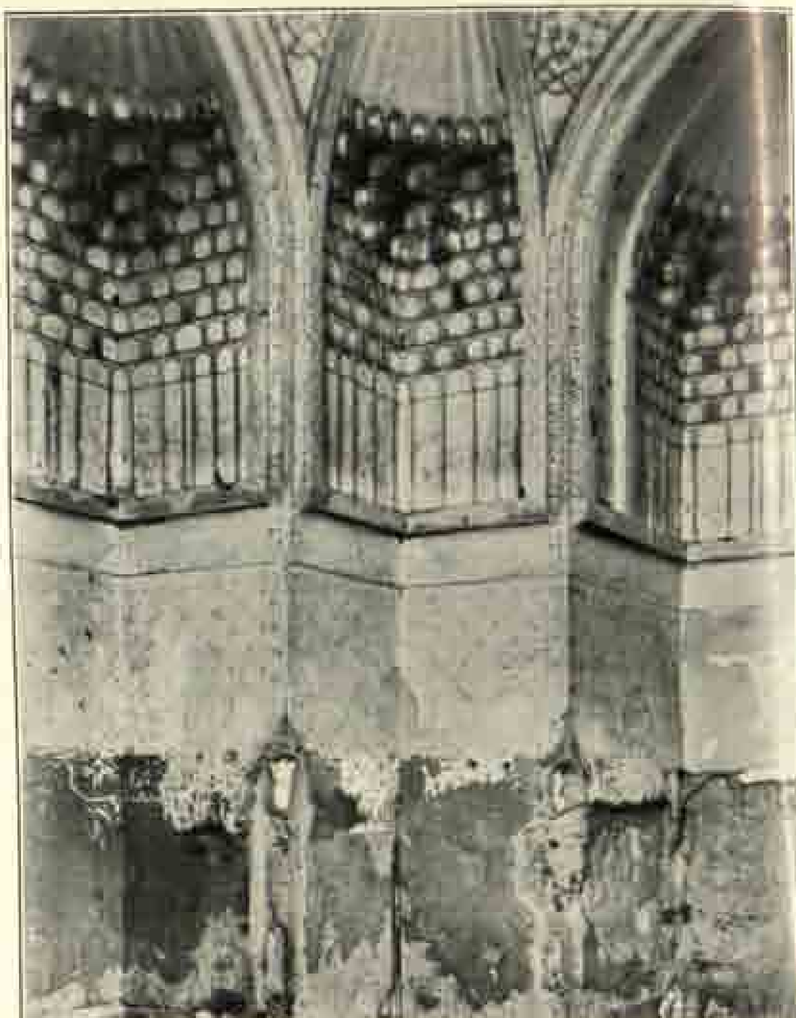
467. WESTERN CORNER OF PASSAGE i, GHĀGHA-SHAHR, AFTER REMOVAL OF LATER WALLS.
Arrow indicates position of remains of painted standing figure.



468. REMAINS OF MURAL PAINTINGS ON EARLIER WALL OF PASSAGE i, GHĀGHA-SHAHR.
(For descriptive details, see pp. [illegible])



469. MĪR MUḤAMMAD, TEKKE TURKOMĀN, AT FARĪMĀN.



470. NICHES WITH PAINTED STUCCO DECORATION, MADRASAH OF KHARGIRD.



471. EASTERN AISLE OF ENTRANCE HALL, B, GHĀGHA-SHAHR.



472. BUTTRESSES OF TERRACE WALL, NORTH OF QUADRANGLE, GHĀGHA-SHAHR.
Arrows point to where Doric capitals of semi-engaged columns were hidden by later masonry.

can be made out [besides remains of white trousers showing a spot pattern in yellow, and of dull red top-boots tied with white laces in bows].

Composition in lower frieze.

Of far greater interest are the paintings in the lower frieze. The height of the surviving painted surface measured from the top line of the frieze is here about 4 feet; but below 3 feet only detached patches remain. The general ground colour appears to be an ochre yellow, and this is also the colour of the haloes next to the heads. But the background between the latter, up to the top of the frieze, is a brownish purple. The whole of the composition belongs to one scene of homage and offerings presented to a seated divine figure on the extreme right. Starting from the extreme left where the wall surface was damaged by the prospecting villager, there are seen traces of a halo belonging to a figure otherwise completely effaced. Then follows a boldly drawn male head within a narrow yellow halo bordered light green with a pink edge. Darker tints of red used for chiaroscuro treatment give strong relief to the features, which are shown in three-quarter profile and distinctly recall Byzantine work. The eyes, round and prominent, are turned upwards to the right. The head appears to have been surmounted by a tiara which has lost all colouring. A red-coloured outline appearing on the right edge of the halo suggests that the figure, otherwise effaced, carried some object in one hand. The next figure has suffered much through damp, which has caused the plaster to bulge in places and the colour to peel off. Of the head little can be made out, except that it was single, flesh-coloured, and carried a curious jewelled head-dress with apparently vandyked corners. Round the head is shown a broad dark red band ornamented with yellow jewels [and a yellow halo deepening in colour towards the outer edge]. The double necklace and the embroidered borders of the dress of the figure are decorated with short transverse lines in yellow over red. The hands joined raise to the right a richly ornamented flat dish of dark red colour ribbed vertically with yellow [in a quasi-ovolo moulding]. Within the dish small round balls, edged yellow, are probably meant for fruit.

Three-headed figure.

The fourth figure preserved in three-quarter length is that of a three-headed personage, of which the middle head is fully drawn, while the other two heads on either side appear only in red outlines of profile and on a reduced scale. [The head to left has a turban-like head-dress with a flame-jewel in front.] The main head is turned half to right, which corresponds to the pose of the hands raised [with palms up and fingers lightly flexed] as if in worship (?). Traces remain of a white head-dress with a flame-shaped agraffe in red. Behind it there rises a curious object resembling the top of a chair back. It is painted in dark red and enriched with yellow ornaments. Below the ears, in which are large rings, ends of ringlets appear. Below a broad jewelled necklace there hang from the shoulders and across the breast two bands of dark red, with circlets evidently meant for jewelled chains. The upper garment is dark green and has sleeves edged with red and yellow. A red-purple lower garment apparently reaches to the ankles and is arranged in full folds. From below the hem appears the R. pr. ankle and foot with red band across instep, while the L. pr. leg is almost completely effaced.

Princely figure seated.

Confronting the three-headed personage and turned to the left is seen the principal and most interesting figure of the whole composition. It is that of a youthful male in a commanding attitude seated as if on a low couch, and is drawn on a scale larger than the rest. The head with bearded upper lip and heavy eyebrows wears a stiff expression. [Immediately above the forehead is a bunch of imbrications in dark red-brown on pink, probably indicating a peculiar treatment of head-dress.] A white mass above has for the most part peeled off. [The hair hangs to the nape of the neck in a massive ' bob ', familiar from Sasanian coins, as is also the imbricated head-dress.] The R. pr. arm is slightly extended and with upraised hand holds a curving mace painted in red with yellow ornaments. The head of the mace raised to the level of the figure's head-dress has the form of

an ox-head, reduced to a small scale and showing two horns wide apart. Its shape closely corresponds to that of Rustam's famous *gurz*, as Persian iconography of Muhammadan times knows it in familiar illustrations of the Shāhnāmah and elsewhere. The left hand is raised above the waist. What the object is which it may hold cannot be made out.

Costume of Rustam-like figure.

From elbow to wrist the arm is covered by the same dark blue robe which extends from below the neck to above the knees. This robe is edged with a dark red band showing a pattern of yellow spots like those described above. Only this band is visible on the right arm. A dark red belt, with a jewelled round buckle in the centre, encircles the waist. From below the robe the left leg with bent knee projects, clad in richly ornamented narrow trousers or leggings. Their colour is dark red, on which is shown an elaborate floral pattern in yellow, embroidered or woven. The left foot, turned to the left, wears a dark-coloured boot reaching to the ankle. A narrow sword, with its sheath represented by a red stripe with bead ornament along its length, hangs against the left thigh. [Passing behind the calf of the visible leg it reappears in front of the shin. One of the slings supporting the sword shows just below the waist-belt.] From behind the figure's neck there flutter upwards two curling white bands shown across and beyond the greenish halo which encircles the head. As the head-dress, too, is white, they may, I think, be safely taken to correspond to the scarf-like taenia shown fluttering behind the crown of kings on Sasanian rock sculptures and on coins. Beyond this imposing figure only the head of an attendant could be recognized, drawn on a much smaller scale and turned towards the former.[4a]

Representation of Rustam.

There could be little doubt that the seated figure receiving worship and offerings was meant to represent a quasi-deified personage, and the ox-headed mace in his hand unmistakably pointed to Rustam, the great legendary hero of Sīstān. In fact, the men from the hamlets across the 'Naizār' who were employed by us at once recognized the familiar emblem and spread the news of the discovery widely. But quite as interesting to me, and in some respects more puzzling, appeared the three-headed figure standing in worshipping attitude before the seated one. The treatment of the composite head is exactly the same as in Trimūrti representations of Buddhist art known from Chinese Turkestān,[5] and this necessarily draws attention to other points of contact with certain Central-Asian Buddhist paintings in details such as those of the jewelled ornaments, coloured haloes, and dress. I could not help being reminded in particular of that fine painted panel, D. vii. 6, brought to light by me in one of the ruined Buddhist shrines of the Dandān-oilik site in the desert NE. of Khotan, and of the strange armed and booted divinity, wholly Persian in style of figure and rich dress, which one side of it shows seated on a flowered cushion. When describing this remarkable picture, deposited in a place of Buddhist worship and yet presenting a figure so curiously unlike those of other Buddhist divinities,[6] I emphasized the unmistakably Iranian character of this figure, evidently locally adopted into the Buddhist pantheon, but could offer no certain clue for its identification.

Painted panel from Dandān-oilik.

Re-examination of this panel in the light of the wall-painting discovered in far-off Sīstān seems to me now to supply this clue and at the same time to help us to the right perception of the

[4a] Mr. Andrews draws my attention to interesting parallels in the following note:

'The pose of the "Rustam" figure in the lower register is exactly paralleled by that of the figure of a king (Yezdegird) on a silver bowl of the 5th century (Sarre, *loc. cit.*, Pl. 111). The curious position of the sword is clearly shown, and the absence from view of the right proper leg is noticeable. In fact both our painting and the repoussé figure would appear to be inspired by the same original.

'The reason for the sword passing behind the lower leg is to prevent it sticking awkwardly out from the thigh when sitting—a detail noticed by some observant artist in antiquity and adopted thereafter by other artists as a happy touch of realism so dear to the Persians and their forerunners.'

[5] See the three painted panels D. vii. 6, x. 5, 8, from Dandān-oilik, *Ancient Khotan*, ii. Pl. LX, LXI, LXII; *ibid.*, i. pp. 298 sqq.

[6] Cf. *Ancient Khotan*, i. pp. 279 sq.

latter's iconographic significance. The Persian divinity of the Dandān-oilik panel is shown with four arms. Of these the lower right one rests clenched on the thigh; the lower left raised to the breast holds an object which I took for a Vajra, but which may well be a cup, as suggested by Professor von Le Coq.[7] The spear-head upraised in the left upper hand is quite clear. But the object at the top of a long curving shape held by the right upper hand, also upraised, is for the most part effaced, and the interpretation of it previously offered as a flower was purely conjectural. Comparison with the mural painting of the Kōh-i-Khwāja site permits us now to recognize here a mace-head, an object far more in keeping with the figure's martial look. This interpretation is distinctly confirmed by the curved support which uniformly in both painted panel and fresco is shown as carrying that object.

*Three-headed figure in panel D. vii. 6.*

If we are thus led to recognize a deified representation of Rustam, the national hero of the Iranian epos, on one side of the Dandān-oilik panel, some significance may reasonably be looked for also in the figure painted on the other side of that panel. We see there a three-headed haloed figure, with blue flesh, seated on a decorated cushion and wearing besides an abundance of jewellery on neck, arms, &c., a tiger skin round the waist. The emblems carried in this divinity's four hands, two couchant bulls shown below, and a few other details, seem as if borrowed from a Brahmanic Śiva or his Buddhistic counterpart.[8] But what primarily calls for our attention here is that we meet a similar juxtaposition of a three-headed divine figure with the deified Rustam also in the Sīstān mural painting. I am unable to suggest any confident interpretation of this figure in either picture. If it has to be sought, as seems likely, in the field of Iranian legend, I must leave the search to others better equipped for the task and having access to the requisite materials. So much, however, may be usefully pointed out here: the same four-armed Trimūrti figure is found on two more painted panels from a Buddhist shrine of Dandān-oilik,[9] and one of these, D. x. 5, shows on its reverse the distinctly Persian figure of a horseman as the subject of a legendary scene which is represented elsewhere also, but has not yet been explained.[10] Are we, perhaps, here, too, in presence of an import of Central-Asian Buddhist iconography derived from Iranian lore?[11]

*Other wall-paintings in Gha. i.*

It is necessary to pay due regard to the nexus with Buddhist iconography now indicated in order to appreciate correctly the interest presented by other remains of paintings, unfortunately badly damaged, disclosed by further examination of the walls near the passage Gha. i. When the later wall ($\alpha$) hiding the painted friezes above described had been removed, an older painted surface about 15 inches farther in was disclosed in the western corner, through a broken portion of this frescoed wall ($\beta$). After all that remained of those friezes had been removed and treated, it became possible to widen this opening and to lay bare this older wall ($\gamma$). Its painted surface, however, was found to extend only about 2 feet to the right of the corner, the face of this wall being completely broken beyond, as seen in Fig. 467. The sketch in Pl. 54 will explain the succession of walls. On the small surviving portion of the facing of this earliest wall $\gamma$ there was painted a robed figure, standing and nearly life-size, which in pose and dress distinctly had the typical appearance of a Bodhisattva, as made familiar by Central-Asian Buddhist sculptures and frescoes.

The colours, where not effaced, had become faint, and consequently the photograph in Fig. 467

[7] See von Le Coq, *Bilderatlas*, p. 50, note on Fig. 40 reproduced from *Ancient Khotan*, Pl. LX.

[8] Cf. *Ancient Khotan*, i. p. 279.

[9] For D. x. 5, 8, cf. *Ancient Khotan*, i. pp. 300 sq.; ii. Pl. LXII.

[10] See *ibid.*, i. pp. 248, 298; ii. Pl. III, LIX (D. vii. 5); *Serindia*, i. p. 180 (Kha. i. E. 0034).

[11] In this connexion brief reference ought to be made to the view expressed by Professor T. Nöldeke in his admirable analysis of the Persian National epos (*Grundriss d. iran. Phil.*, ii. p. 139) that the figures of Rustam and his father Zāl did not originally belong to the legendary cycle which it treats. The question is justly raised there as to whether they may not possibly have been first introduced by the Saka conquerors of Sīstān from their earlier Central-Asian seats.

Bodhisattva-like figure.

fails to show more than the barest outlines, and these, too, only above the narrow waist. The head had practically lost all modelling and shading over the pink oval which marks its position. Traces of a nimbus remained. Below the neck there was shown a broad carcanet-like band, in red enriched with jewels and of a type common in both pictorial and sculptural representations of Bodhisattvas since the Gandhāra period of Buddhist art. A closely fitting under-robe of light yellow covered breast and right arm. A dark red garment was visible from above the waist down to about the level of the knees. From the left shoulder there descended a cloak-like upper garment of brownish purple. Lower down, about the left knee, yellow folds were visible, probably belonging to the under-robe. Everything below had disappeared owing to the plaster having broken off. Over the right shoulder traces appeared of another head with an oval band below the neck. The colour scheme in the dress of the figure above described and in what remained on the wall at the back of the passage i distinctly differed from the somewhat crude colouring in the two friezes on wall $\beta$.

Remains of paintings behind passage Gha. i.

The wall at the back of the passage i, over 4 feet thick, retained small portions of its original painted plaster surface both above and on either side of the arched doorway, $\delta$, seen on the left in Fig. 467. As this surface is flush with that which bears the fresco last described on wall $\beta$, it is certain that the mural decoration on both sides of the corner is coeval. From the fact that the painted plaster survives only from about a foot above the arch it may safely be concluded that the doorway was opened later. As this doorway, 4′ 3″ wide, does not lie in the centre line of the later vaulted passage, it is probable that it was opened some time before this passage was built. The painted surface to the right of the doorway had suffered too badly from moisture and the mud deposit of white ants for any connected design to be recognizable there. Above the arch I could trace only indications of richly decorated dresses in two places and of a rayed nimbus in red. Farther to the left on the same back wall, the SE. wall of the later vaulted passage built against it had offered some protection. When this later wall was removed remains of painted plaster came to light over a width of about 3 feet. The workings of white ants had defaced much of the surface. But to the right there survived portions of a figure about life-size, dressed in a purplish robe, apparently offering a bowl to some figure on the left. Below the badly broken head appeared a broad jewelled necklace. Of the figure to the left only the folded edge of a similarly coloured robe could be made out.

Structural additions and changes.

It was of some interest to note that the ends of both the older walls $\beta$ and $\gamma$, where they are now covered by the adjoining front wall of the large battlemented gateway, were faced with white plaster. This clearly shows that the apartment of which these walls formed the NW. side had been in existence before this gateway was built, and for a time long enough to necessitate the repairs which the addition of the outer wall $\beta$ indicates. How far this original apartment extended on the SW. beyond the arched doorway subsequently cut through its wall there, it is not possible to ascertain. But it deserves notice that this wall continues for about 24 feet beyond the doorway.

Indications of Buddhist worship.

Judging from the character of the paintings on both the walls $\beta$ and $\gamma$ it appears to me probable that the cella, hall, or passage which stood originally in the position partly occupied by the later structure i was connected with some place of Buddhist worship. That these mural paintings are of an earlier date than the Muhammadan conquest about the middle of the seventh century may also be assumed on general grounds, though with some reservation in the case of the 'Rustam fresco', which in view of the position occupied by its deified hero in national epic tradition might well have been tolerated even by zealous converts to Islām as of a secular nature. That Buddhism had during Sasanian times and probably before them possessed a footing in Eastern Īrān is not subject to any doubt. How far westwards exactly its influence extended is a question which only future

archaeological explorations on the ground are likely to elucidate. The hurried examination I was able to carry out of the ruined site has sufficed to show that its remains look back on a long history. Not until they have been systematically cleared and studied—a matter of protracted labours, perhaps of years—will it be possible to determine the original purpose of the main structures and the changed uses to which they have probably been put down to late medieval times. Hence it would not be safe to see in these mural paintings of Buddhist type more than a proof that the site established at the 'hill of the Saint' included a shrine devoted to Buddhist worship.[12] That the site must have attracted Zoroastrians in still larger numbers, since theirs was probably by far the largest community in Sīstān throughout historical times before the advent of Islām, may be considered as certain, particularly in view of the reference in the Avesta to be mentioned below. But that places of popular pilgrimage in the East, especially if they are of the 'Svayaṁbhū-tīrtha' type, are apt to be provided with sacred establishments ministering to the needs of wholly different sects and creeds is a fact abundantly illustrated from India to Turkestān and China.

Remains of wall-paintings in corridor Gha. iv.

Owing to the advanced state of decay of the central hall, v, whose dominating position and size necessarily gave it special interest, my examination had failed to reveal the original purpose for which it was intended. Could it be the principal apartment of a palace or possibly a place of Zoroastrian worship? The relievos found on the walls facing the terrace in front suggested that the building had a secular character, but could scarcely be considered to furnish a definite proof. Therefore the discovery of remains of mural painting beneath that terrace was particularly welcome. They were found in a subterranean vaulted corridor, Gha. iv, which evidently once extended along the whole length of the terrace facing the quadrangle and was meant to support it. In its present ruined condition it can be traced for about 62 feet, from its broken opening seen in Fig. 461 near the porch of the central hall, running towards the SW. Its width between the side walls as I found them is 6½ feet. The facing of the wall towards the quadrangle showed a small break in one place, and here one of the men prospecting for more 'pictures' noticed a piece of painted plaster on the surface behind. Removal of a little of the coarse outer brickwork disclosed part of a painted human figure and proved that here, too, later masonry was hiding an older wall and vaulting. This later masonry consisted of sun-dried bricks, 24″ × 13″ × 3″ in size and carelessly set in mud plaster. It had, no doubt, been inserted in order to strengthen the vaulting at some time when its condition had caused misgivings.

Removal of later wall.

The portion of the earlier wall surface laid bare showed the head and bust of a nude male figure painted in terra-cotta colour and in unmistakably classical style. In order to follow up this interesting discovery I decided to have as much as possible of the adjacent later masonry removed. But in order to do this in safety it proved necessary to strengthen the vaulting, which had evidently become insecure already in ancient times, and to lighten as far as possible the weight of the brickwork and debris resting upon it. For the former purpose I had a wall built along the centre line of the corridor right up to the top of the vaulting. This task and the removal of the heavy debris from the terrace above was carried out under the supervision of the Public Works employee attached to the Consulate, while the time needed for its execution was profitably utilized by me for a reconnaissance in the desert to the south. When on my return the later wall facing was carefully removed for a distance of about 15 feet on both inner and outer walls, it was seen that white ants, together with the moist plaster with which the later masonry had been applied, had destroyed the original decoration of the walls and vaulting almost entirely, with the exception of a space about 8 feet long at the place of the first discovery.

[12] It is in this sense that I wish now on fuller consideration to restrict the cursory reference to a 'large Buddhist monastery' made in my preliminary account, *Geogr. Journal*, xlviii. p. 221.

Wall-painting of classical style.

Here, however, for some unexplained reason there survived remains of an interesting composition. At a height of about 3 feet from the original floor two figures were shown facing each other and apparently seated on the ground (?). Both figures were preserved more or less from the head to above the waist. That on the right had the left leg outstretched. The left arm was raised to about the height of the neck with the hand grasping some indistinct object. The right arm was extended along one of the legs resting on the ground, but had been destroyed for the most part by a large crack in the plaster, probably caused by white ants and running diagonally across from the frieze above the head. The latter, represented in profile and about 5" long, showed pure classical features. Like the rest of the figure it was painted in terra-cotta and in silhouette only, the whole curiously recalling the treatment of figures on Greek vases. The figure opposite had suffered even more; but its head remained and enough of the bust and arms to show that its attitude corresponded closely to that of the figure on the right. The whole at first sight suggested a pair of men engaged in some game. The background had been badly eaten by white ants and showed no distinguishable features. Evidently the terra-cotta colour, being less palatable to those destructive insects, had been instrumental in saving the figures.

[Since the above account based on what I could see at the time in the dim light of the corridor was written, Mr. Andrews has kindly supplied me with the following description of the painting as now set up at New Delhi and carefully examined by him. To his artist hand is due the drawing in Pl. 54 which shows the wall-painting in its present fragmentary condition. 'The plaster surface painted in tempera shows two youthful male figures nude to the waist, facing each other. White drapery at the waist of each suggests a loin-cloth. The figure to L., almost in profile, with a slight turn of the shoulders towards the left, leans forward to the right, both arms fully extended, the hands at waist level and grasping a spear or cord extended horizontally across the picture. The head, almost entirely missing, seems to have been in profile and the gaze directed across to the second figure. Portion of a white taenia is visible at the back of the head.

'The figure to R. has the head better preserved and presents a perfectly Greek profile and youthful wide-open eye. Round the head is bound a white taenia. The shoulders are swung round to right by the action of the L. pr. arm, which is thrown back and flexed so that the hand is brought up to shoulder level and grasps a vertical rod or spear. The R. pr. arm is extended to left, the hand on level of waist. The pose is just that of a fencer on guard. In fact the group suggests attack and defence.

'The drawing of the figures is quite naturalistic and essentially Hellenistic. The curve of the back and the line of chest and abdomen of the figure to left are finely shown. Almost all detail is lost, so that the figures are now practically in silhouette. The background to the figures is now discoloured white, with a band of upright foliage suggestive of roughly drawn acanthus leaves running partly behind and above the heads. Above this again is a horizontal wreath of leaves and flowers with entwining ribbon band at regular intervals.']

Decorative frieze.

The plaster surface was here finer and harder than on the walls of Gha. i and permitted the panels with the above scene to be cut out and removed in spite of all the damage suffered. The mud plaster had been applied in two successive layers, each about 1¼" thick. By some chance there also survived above this composition a small portion of the decorative frieze which appears to have once extended along a considerable part of the outer wall of the corridor. At the top of the wall, which rose about 8½ feet above the floor, extended a brick course projecting 2" and carrying the vault. Below this ran a round moulding, 3½" high, painted dark red, and from this downwards followed a frieze, 28" wide and made up of different coloured bands, as indicated in the sketch. The widest of these bands contained a well-designed scroll ornament resembling a wreath tied with

ribbons. The whole of this decoration, like the figures below, clearly suggested a strong Hellenistic influence. Remains of the same or a closely similar decoration could be traced also at other places on both inner and outer walls, but far less clearly. Such painted plaster surface as had survived on the wall portions that were cleared of the later masonry was too much effaced or broken to permit designs to be recognized with certainty. But it may be mentioned that some 5 feet beyond the composition above described a curving portion of a large festoon-like ornament, marked by a succession of differently coloured bands, could be made out. Small leaf-like shapes were visible both above and below this festoon (?), but the significance of the scheme was not clear.

The clearing of the debris above the SW. end of the corridor showed that the right-hand side of the doorway *k* leading into the chamber viii was decorated below with a panel in hard plaster of Paris. This showed a sunk pattern of geometrical design as seen in the drawing, Pl. 54. The grooves in the sunk surface retained traces of red colouring. The doorway was filled with brick-work to above the level of the panel and this had helped to protect the latter. The plaster of Paris covering had extended below the panel down to the floor. There is nothing to prove that this stucco decoration is contemporary with the construction of the chamber where it was found, and it looks decidedly later than the mural painting on the original wall of the corridor below. That the corridor must belong to the earliest portion of the ruins is quite certain from its position beneath the terrace which bears the central cella v, upon which the whole of the quadrangle with the structures surrounding it is aligned. How remote may be the period when that mural decoration was executed it is impossible at present to determine. But if the distinctly Hellenistic appearance of the design of the two facing figures is considered, together with the architectural detail of the terrace wall (the Doric capitals of the columns hidden behind the buttresses), it seems difficult to avoid the conclusion that the construction of the central part of the ruined site dates back to early Sasanian times. Decorated plaster panel.

## Section IV.—REMAINS ON THE HILL-TOP

Outside the northern face of the circumvallation the slope rises rapidly towards the foot of the precipitous cliffs (Fig. 458) that line the hill-top on this side as along most of its edge. Wherever the slope permitted construction, small terraces are found here, roughly built with stones and occupied by superterrene tombs. Thus an extensive cemetery encircles the walled area. Most of these tombs appeared to be correctly orientated after Muhammadan custom. Generally the flat stones placed above the low stone walls had fallen in and allowed remains of bleached bones to be seen. Some of these closely packed groups of tombs lie quite near the torrent beds down which occasional rain finds its way along both sides of the circumvallation. The revetments or *bands* of large slabs which are to be seen here and there along and within these beds are more likely to have been placed there to prevent tombs being undercut and washed away than for the purpose of catching rain-water. Tombs on slope behind Ghāgha-shahr.

The edge of the plateau, which, where it is highest, rises approximately 200 feet above the topmost ruins of Ghāgha-shahr, is gained by a fairly well preserved road ascending along the cliffs over walled-up ramps (Fig. 463). In one place the bare rock face has to be climbed over a height of about 20 feet. Following a natural ledge the road then passes through what appears to have been a stretch of roughly built stone wall, closing a dip in the rocky rim of the hill-top. The height overlooking this dip from the NE. is occupied by the small walled ruin known as *Kok-i-Zāl* (Fig. 474). The area enclosed by massive brick walls measures about 50 yards by 30, and comprises a row of square vaulted apartments along the north-western wall and a congeries of small quarters, also vaulted, on the side towards Ghāgha-shahr. There can be little doubt that this walled enclosure Ruins of Kok-i-Zāl.

was intended to protect the site below against attack from the height immediately above. The sun-dried bricks used in its walls measure mostly about 17" × 12" × 4–5", and thus differ from the somewhat larger ones found in most of the older structures below.

Ruined mounds on plateau edge.

Ascending from the previously mentioned dip along remains of a wall for about 50 yards to the SW. one reaches a small completely decayed mound raised on a stone foundation, as seen in the foreground of Fig. 474. It probably marks the position of a brick-built tower intended to guard the road leading down through the dip. A second small mound of the same character, about 160 yards farther to the SW. (Fig. 458), occupies the top of the cliffs just above the point where the outer enceinte of Ghāgha-shahr ends at their foot (Pl. 52).

Fort of *Chihil-dukhtarān*.

Proceeding along the edge of the plateau westwards for about one-third of a mile one arrives at the ruined fort known as *Chihil-dukhtarān*, the 'Forty Maidens'. It occupies the southern extremity of a plateau tongue which falls off very precipitously to the south and west. On the latter side it overlooks the small valley of *Dara-i-sōkhta* through which leads the easiest ascent to the hill-top. It was, no doubt, in order to guard this approach that the little fort was placed there. Its enclosing wall of well-laid solid brickwork forms an oblong about 40 yards by 30. It has loop-holes along most of its length, placed only a few feet above the ground. The gate in the middle of the east face is flanked by two small round towers, one of which retains the vaulting between an upper and a lower story. Round bastions defend the corners. A long hall, once vaulted, extends along the inside of the western wall and has a foundation of large roughly squared stone slabs. Similar foundation walls found along the north and east walls mark decayed smaller quarters. The potsherds found at this small fort as well as at Kok-i-Zāl mostly show the same superior red clay and ribbed outer surface which is characteristic of the type of pottery prevalent at Ghāgha-shahr. This and the general condition of the ruin point to Chihil-dukhtarān belonging approximately to the same period as the latter. A popular legend reproduced by Mr. Tate accounts for the name.[1] About 80 yards to the north there are found remains of a much-decayed square enclosure built of rough stones, which might mark a Sarai. Some 20 yards farther in the same direction a series of ruined rooms of the same construction extends for about 30 yards from east to west.

Places of local worship.

The other objects to be noticed on the top of Kōh-i-Khwāja claim antiquarian interest as visible evidence of the sanctity that attaches to the hill in present-day local worship. Close to where the old road passes through the dip of the rocky rim two round holes in a stone are pointed out to the faithful as the footprints of Rustam's famous horse, and are known as *Zum-i-Duldul*. A spring is believed to have once issued from them. A larger rock farther up and about 250 yards west of Kok-i-Zāl is supposed to retain the supernaturally long footprints left by 'Khwāja' or holy 'Alī. They are marked by two furrows nearly 2 feet long, separating natural corrugations of the rock surface. A rough stone enclosure protects the sacred spot. Here, as in so many places on the Indian North-East Frontier and in Central Asia, tenacity of local worship may have substituted the Muhammadan saint for Gautama Buddha.[2]

Ziārats on Kōh-i-Khwāja.

Muhammadan pilgrims from all over Sīstān venerate and visit in their thousands a group of Ziārats situated towards the northern edge of the plateau (Fig. 475; Pl. 52). Particularly at the Naurōz or New Year's festival the whole plateau is a scene of great rejoicings, and for one night also, according to local report, of a good deal of promiscuous licence. The principal shrine appears to be that of *Pīr Ghaltān* near the brow of the hill-top. At three other sacred tombs on somewhat lower ground I found large stones set upright, near which the pilgrims' offerings are deposited. At the supposed last resting-place of Pīr Gandum these consist of grain. Another Ziārat is that

[1] See Tate, *Seistan*, p. 266.

[2] Cf. my paper on 'Buddhist Local Worship in Muhammadan Central Asia', *J.R.A.S.*, 1910, pp. 839 sqq.



473. ROCK ISLAND OF KŌH-I-KHWĀJA, SEEN FROM EAST ACROSS HĀMŪN.
Arrow points to position of ruined site, Ghāgha-shahr.



474. RUINS OF KOK-I-ZĀL ON KŌH-I-KHWĀJA.



475. VIEW ACROSS TOP OF KŌH-I-KHWĀJA, WITH GRAVES AND ZIARATS, FROM KOK-I-ZĀL.

of a holy man known as 'Pīr Chilli', who is believed to have been a Mirāsī or strolling player from India.

Graveyards on Kōh-i-Khwāja.

The whole area around the Ziārats, as Fig. 475 shows, is covered with graveyards. The tombs are in most cases, but not always, placed above ground, a mode of burial which here, owing to the abundance of rough stone material, was, perhaps, more convenient than the digging of graves in rocky soil. There can be no doubt that the vast majority of the tombs here, as on the slopes close to Ghāgha-shahr, are Muhammadan; but I noticed some which did not show the orthodox orientation. Most of the tombs I saw had been opened. This was explained by my local informants as due to extensive rifling operations said to have been carried out by Sīstān villagers 'three or four generations ago'. Finds of trinkets, jewellery, and the like were alleged to have been made then, and the trouble taken to open these hundreds of tombs suggested that there was some foundation for the statement.

Large excavations.

A very curious feature on the plateau are the numerous large excavations to be found on more or less level ground between Kok-i-Zāl and the Ziārats. They undoubtedly mark old quarries, and in view of their position it seems difficult to believe that they could have served any other purpose but that of furnishing materials for the multitude of surface tombs. Within or near the pits I could see only the live rock or small pieces of stone useless for the purpose of rough masonry. Large spoil heaps of such pieces litter the ground near the pits. The excavations were said to retain water for a short time after rain, and this chance is duly appreciated by the pilgrims. But that the pits were constructed to serve as reservoirs is very unlikely.

Sanctity of Kōh-i-Khwāja.

That the local worship of Kōh-i-Khwāja attested by Ziārats, cemeteries, and name is old does not stand in need of special demonstration. It is obvious that this hill with its cap of igneous rock, rising in impressive isolation fully 400 feet in the middle of the level expanse of marsh and alluvial plain of the Sīstān basin, was bound from early times to attract the veneration of those dwelling in its vicinity and to become for them, to use the Indian hieratic term, a *svayaṁbhū-tīrtha*, 'a self-created place of worship'. Fortunately it is possible for us to prove this ancient fame of the hill from the earliest religious texts of Īrān, the Avesta. I have already referred above to the passage Yasht xix. 66 in connexion with the importance attaching in the Avesta to the lake of Sīstān.[3] Vivid recollection of that passage, due to its having been the subject of my first effort in print, made me realize, while still at Kōh-i-Khwāja, that it contains not only the names of the rivers which flow into the Sīstān lake but also the name of the hill which rises from its midst. It was subsequently a special satisfaction to me to find that the correctness of the interpretation of the passage which leads us to identify Kōh-i-Khwāja with Mount *Ushidhâo* of the Avesta had already been recognized by my old and much respected friend, the late Professor James Darmesteter.[4]

Mount *Ushidhâo* in Avesta, Yt. xix. 66–7.

The passage Yasht xix. 66–7 runs thus:[5] *ughrem ah'aretem h'arenô . . . yaṯ upaṅhacaiti yô avadhâṯ frakhshayêitê, yathâ zrayô yaṯ Kãçaêm Haêtumatem, yathâ gairis yô Ushidhâo yim aiwitô paoiris âpô hãm gairishâcô jaçentô.* (67) *avi tem avi-hantacaiti avi tem avi-hãm-vazaitê H'âçtraca Hvaçpaca Fradatha H'areṅuhaitica yâ çrîra Ustavaitica yâ çûra Urvadhaca pouru-vâçtra Erezica Zarenumatica. avi tem avi-hantacaiti avi tem avi-hãm-vazaitê Haê*[*tumâo*][6] *raêvâo h'areṅuhâo . . .* '[We worship] the mighty unattainable [kingly] glory which attaches itself to him who rules there where is the lake Kãçaoya formed by the Helmand, where Mount Ushidhâo is, around which many mountain streams come together. Towards this [mount] flows and unites the H'âçtra and the

[3] See above, ii. pp. 906 sq.

[4] Cf. Darmesteter, *Zend-Avesta*, ii. p. 634.

[5] For the sake of typographical convenience the transcription follows the system once rendered familiar by Justi's *Handbuch*, replacing *q* by *h'*.

[6] Professor Geldner's emendation of *Haê - - - -* of the text into the name *Haêtumâo* is certain and generally accepted; see Bartholomae, *Altiran. Wörterbuch*, p. 1729.

Hvaçpa, the Fradatha and the beautiful H'areñuhaiti, and Ustavaiti, the mighty, and Urvadha rich of pastures, and the Erezi and Zarenumati. Towards this [mount] flows and unites the beautiful glorious Helmand . . . ' This rendering of the passage, which is that adopted in Professor Darmesteter's French translation, not only conforms best to the literal meaning of the text but is borne out also by the geographical facts. As already stated above,[7] the first four rivers here named have been reliably identified by me with the present Khāsh, Khuspās, Farah, and Harūt rivers, ranged in the same order from east to west. Now reference to the map will show that while these rivers, as well as the Helmand named at the end of the list, all unite in the Hāmūn, they yet descend from widely distant mountains, almost as far apart as Herāt and Kābul. Hence it is clear that the words . . . *Ushidhâo yim aiwitô paoiris âpô hãm . . . jaçentô* must be taken in the sense indicated above, giving to the proposition *aiwitô* its regular meaning 'around', instead of rendering it by 'from around' or 'at the foot of', as was done by me, in accord with others, when I first dealt with the passage.

Mt. *Ushidhâo* identified with Kōh-i-Khwāja.

From the correct interpretation of the words immediately following the name *Ushidhâo*, when considered in the light of our present knowledge of the topography of the Sīstān basin, it clearly follows that Mount Ushidhâo must be identified with the Kōh-i-Khwāja.[8] This again helps us to account for its sacred character, as shown by the few other passages of the Avesta where Ushidhâo is mentioned, as also for the etymology of its name.[9]

Unidentified rivers of Avesta passage.

It only remains for me to refer briefly, in connexion with the Yasht passage just discussed, to the four other rivers which are named in it and which still await identification, viz. *Ustavaiti*, *Urvadha*, *Erezi*, and *Zarenumati*. In view of the location now determined for Mount Ushidhâo, *around* which all these rivers are said to gather, the question has occurred to me whether they ought not to be looked for among the streams which the map shows as descending into the Hāmūn basin from the western hills. It is true that water from these is not likely to reach the Hāmūn except in the form of occasional floods after especially heavy rain in the ranges towards Birjand and Neh. But that apparently holds good also in the case of rivers like the Khāsh, Khuspās, and Harūt (H'āçtra, Hvaçpa, H'areñuhaiti).[10] The fact that the preceding four river names are

[7] See above, ii. p. 904.

[8] Professor Darmesteter, when discussing in *Zend-Avesta*, ii. p. 635, note 98, *Ushidhâo* and *Ushidarena*, the alternative name of the mount or hill (*gairi*) which is linked with it in other passages (Yasht i. 28; xix. 2), left it undecided whether it was to be located 'on the distant mountain chains from which the Helmand and the other rivers of Sīstān descend or on one of the isolated eminences which break the uniformity of the Sīstān plain, like the "Castle of Rustam", the Kōh-i-Khwāja, which Nādir Shāh in vain besieged'.

If our present exact topographical knowledge of Sīstān had been available at the time, that great Avesta scholar would, I do not doubt, have adopted the latter view. He unhesitatingly had accepted in 1887 my identification of the river names linked with that of the hill.

[9] It is certain that the name which in the nominative appears as *Ushidhâo* and in the accusative as *Ushidãm* (Yasht i. 28) is a compound containing in its first part the word *ush* (Sanskrit *ushas*, *ush*), 'dawn, morning light', probably in the locative form. Bartholomae, *Altiran. Wörterbuch*, p. 415, takes the second part as *dam*, 'house, residence', which is grammatically possible, and assumes the compound to signify: 'he who resides in the morning light.'

But it is equally possible to recognize in the second part the word *dā*, 'sight' (cf. Bartholomae, *loc. cit.*, p. 725), which would give us for *Ushidhâo* (*Ushidâo*) the very appropriate literal meaning: 'he whose sight is in the dawn.' Such a designation would seem particularly suited for the hill of Kōh-i-Khwāja, which, rising in complete isolation to a height dominating the whole flat expanse of the basin, catches the first rays of the sun in the morning and can thus be seen far and wide from the cultivable area to the east of it.

The Pahlavī rendering *Ōsh-dāshtār* is capable of different interpretations. The one adopted by Neriosengh ('the hill which puts and guards intelligence in men') is accounted for by Darmesteter's gloss: la montagne éclairée la première par les rayons de l'aurore illumine aussi l'intelligence, car aurore et intelligence sont un (*ushā* et *ushi* Grand Bundahis, &c.).

*Ushidarena*, the other name of the hill, similarly rendered *Ōsh-dāshtār* by the Pahlavi version, is coupled in Yaçna 2. 14 with the adjectives *mazdadhâtem ashah'âçtrem yazatem*, 'the Mazda-created, granting the ease of righteousness, the holy'. This clearly establishes the sacred character of the hill in antiquity, such as still clings to Kōh-i-Khwāja.

[10] Cf. Tate, *Seistan*, pp. 109, 116.

enumerated in proper sequence from east to west seems to favour such an assumption, and so also does in a sense the conclusion of the list with the name of the Helmand. But I am unable to support this suggestion by any direct evidence drawn from modern names of those streams, and must leave the question for future local investigation.[11]

Tribe of *Sayād* fisher-folk.

Before concluding the account of what I observed during my stay near the eastern shore of the Hāmūn, I may briefly refer to the interest presented by the small quasi-amphibious tribe of the Sayād or fisher-folk with whom I came in contact there. There are strong reasons, both historical and traditional, justifying the belief that the present settled population of Sīstān is composed of very varied racial elements, for the most part brought there by successive waves of conquest and immigration.[12] The element which is likely to have preserved most of its original racial character unmixed is the Sayād tribe, whom their peculiar and distinctly primitive mode of life as fishers and hunters by the reed-covered lagoons of the Hāmūn keeps widely separated from the agricultural population. As their livelihood obliges them to follow the seasonal fluctuations of the lake their life is bound to be essentially nomadic. This fact is strikingly reflected by the temporary character of the reed huts (Fig. 452) which shelter them in their changing habitats. The fact that distinct sections of the lake and marshes are apportioned by tribal custom to particular family groups among them is, of course, also in keeping with the peculiar conditions of their nomadic existence.[13]

Anthropometrical record of Sayāds.

It is likewise easy to understand that these conditions should have developed in the Sayāds a very marked exclusiveness as regards interrelation with their settled neighbours, as well as a curious mixture of shyness and independence. Of the latter traits I had a characteristic experience on a later occasion, when I managed, not without difficulty, to secure the anthropometrical data relating to this tribe analysed in Mr. Joyce's Appendix *C*. They were obtained from Sayāds who were camping at the time not far from the route leading across the 'Naizār' towards Bandān (Fig. 454).[14] Comparison of these with the more abundant data that I obtained from Sīstānīs and Balūch levies enlisted in Sīstān makes it appear far more probable that the Sayāds represent the remains of a submerged aboriginal population, as suggested by Mr. Joyce, than that they are of Arab descent, as has been conjectured elsewhere.

[11] The maps at present accessible to me either leave such ordinary dry river-beds nameless (as e. g. in the case of the one descending past Bandān) or note for them such general descriptive designations as *Shōr Rūd* or *Tursh-āb*, which indicate the saltiness of their water.

We have undoubtedly a reference to the *Zarenumati* in a passage of the Bundahish (see Dr. West's translation in *Sacred Books of the East*, v. p. 82) which mentions of Afrāsiāb that 'he conducted the spring *Zarīnmand* which is the Hētūmand river they say' into the sea Kyānsīh (the Zrayō Kāçaoya of the Avesta, i. e. the Hāmūn). Is it possible that by it is meant the old branch of the Helmand, known as Rūd-i-biyābān and dry since over a century, which at different periods since prehistoric times carried water into the desert east and south of Rāmrūd, or else that still older branch, the 'Rūd-i-khushk', once flowing into the Gaud-i-Zirrah? Cf. below, ii. pp. 943 sq.

[12] Much useful local information on present tribal divisions in Sīstān is collected in Tate, *Seistan*, section iv, 'The People of Seistan'. It is mixed, however, with a good deal of speculative matter of an ethnological nature. This stands in need of more critical treatment both as regards the use made of extraneous sources and the assumptions based upon them. No anthropometrical data were collected.

For an account of the Sayāds, estimated to form a community of only about 1,500 souls in the whole of Sīstān, cf. *loc. cit.*, pp. 207 sq.

[13] See *ibid.*, pp. 124 sq.

[14] Towards the close of January, when I found time for collecting anthropometrical materials, the dispatch of Indian troops towards Birjand had necessitated the employment of Sayāds on the construction of a large number of those 'Tūtins' or reed rafts which were required for crossing the tract on the Bandān route already inundated by the rising waters of the Hāmūn. Though abundantly paid for this ferrying, the methods of which they alone understand and practise, the Sayāds had got frightened and taken to the marshy reed-beds with their families and few belongings. There they were hiding like wildfowl, near enough to be heard from the shore and yet completely beyond approach for less aquatic humans. How they were induced in the end to come out from this safe retreat to submit to measuring is another story.

# CHAPTER XXIX

## RUINED SITES WITHIN THE OASIS OF PERSIAN SĪSTĀN

### SECTION I.—REMAINS AT AND NEAR SHAHRISTĀN

Site of *Shahristān*.

FROM the shore of the Hāmūn we may conveniently turn to the opposite, eastern extremity of the present cultivated area of Persian Sīstān. There patches of ground rising above the level flat, irrigated or liable to inundation from the Helmand, have allowed a group of ruins to survive for which antiquity can be claimed. The oldest among them are probably the remains of the site known as Shahristān. They occupy the top of a detached ridge of clay which rises boldly above the alluvial plain close to where several of the principal canals of the Persian portion of the delta take off from the Rūd-i-Sīstān, the present southern branch of the Helmand. The ridge is the northernmost outlier of the gravel-covered plateau or *Dasht* which stretches for a considerable distance south along the left bank of the Helmand, and separates the river from the alluvial plain extending from the Hāmūn to the terminal depression of the Gaud-i-Zirrah. The top of the ridge commands a splendidly open view of the head of the Helmand delta, extending from the great ' Band-i-Sīstān ' over the whole region comprised between the Rūd-i-Sīstān and the Nād-'Alī branch of the river.

Remains of fortification.

The ridge of Shahristān extends for a distance of about a mile from north to south and at its highest point rises about 80 feet above the bank of the canal that passes along its foot on the east (Fig. 477). Its southern half, separated from the rest by an eroded dip, is occupied, as the sketch-plan, Pl. 55, shows, by the remains of an ancient circumvallation. On the other portion are found some small modern structures, such as a few sepulchral domes by the side of Muhammadan graveyards. Beyond this again the ridge has its continuation in a low and narrow plateau tongue cut off by a small Nullah. The fortified area in the south measures about 800 yards in length and is about 250 yards across at its northern end where it is widest. The enclosing walls, built of sun-dried bricks and originally very massive, are much decayed. As the photograph, Fig. 478, shows, they are, with the towers and bastions which strengthened them, for the most part reduced to the condition of more or less shapeless mounds. At the northern end where the slope is easiest, facilitating attack, two lines of wall are traceable; both survive only in fragments. Towards the south where the ridge attains its greatest elevation, rise the ruins of what was obviously a fortified palace or citadel, forming a quadrilateral block of about 140 yards by 80 (Fig. 478). At the north-east corner of this, some of the masonry was still distinguishable on the surface, and here bricks of two sizes, $18'' \times 16'' \times 4''$ and $16'' \times 11'' \times 4''$, could be measured.

Evidence of antiquity.

The far-advanced decay of this inner stronghold, notwithstanding the very massive walls, like that of the outer circumvallation, clearly pointed to the site being very ancient. This indication seemed to me to deserve all the more attention in view of the protection afforded to the ruins by their position on ground secure both from subsoil moisture and from wind-erosion. The same conclusion was forced upon me by what I observed of the character of the pottery debris which abundantly covered the whole area, and Mr. Andrews' detailed examination of the ornamented specimens brought away has fully confirmed it. With regard to this evidence, account must necessarily be taken of what has been learnt from experience at other sites in Sīstān.



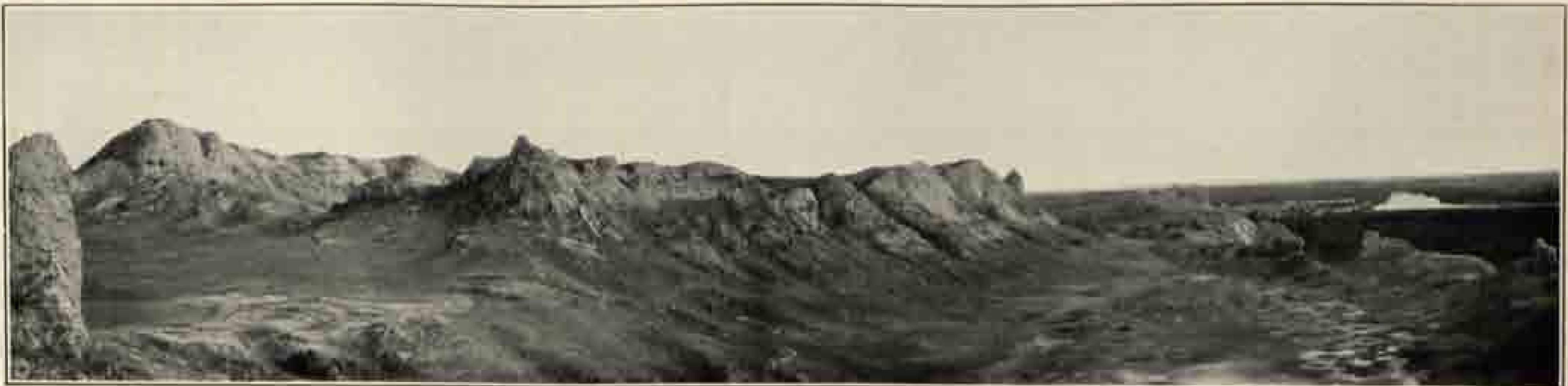
476. BAND-I-SĪSTĀN BARRAGE ACROSS HELMAND, SEEN NEAR ITS HEAD ON PERSIAN BANK.



477. RIDGE BEARING REMAINS OF SHAHRISTĀN SITE, SEEN FROM EAST.



477. a. REMAINS OF MUHAMMADAN TOMBS ON WIND-ERODED MOUND, SOUTH-EAST OF KALĀT-I-GIRD.



478. RUINED CIRCUMVALLATION AND CITADEL AT SHAHRISTĀN SITE, SEEN FROM NORTH.

Two observations are particularly instructive. One is the extreme copiousness of that fine regularly ribbed ware which is so common at Ghāgha-shahr and which can there be associated definitely with Sasanian times and probably also with a somewhat earlier period.[1] The second is the fact that of glazed pottery fragments such as abound at all sites regularly occupied during Muhammadan times, whether early or late, only very few could be found. On the other hand, ornamented pieces such as are to be picked up at Shahristān with comparative frequency show types of decoration which are altogether absent at the ruins of the numerous sites of the Muhammadan period visited by me in Sīstān. The decorative motives used are of a type which, as far as Sīstān is concerned, may be called archaic. For details of these patterns, which are either incised, punched, or done in relief, I must refer to Mr. Andrews' analysis of the decorated specimens described in the List at the end of this section.[1a] Here, however, it deserves to be noted that neither at Shahristān nor at Ghāgha-shahr did I come across a single piece of that painted prehistoric pottery with which I had such ample opportunities of becoming familiar at wind-eroded sites in the desert south of the present cultivated area of Sīstān, both before and after my survey of Shahristān.

Indications from pottery.

Only from systematic excavations could definite evidence be hoped for as to the period to which the earliest remains of the site go back and as to the length of time over which its regular occupation extended. The indications detailed above appear to me, however, sufficient to justify the belief that the occupation of Shahristān dates from historical times preceding Sasanian rule, but may well have continued for some time during the latter. Subsequently, the ridge with its crumbling fortifications may have on occasion served as a temporary place of refuge. But it is very unlikely that after its final abandonment the site could ever have been permanently occupied by more than a few huts, such as are now to be found there belonging to cultivators of recently reclaimed jungle (Fig. 477).

Early period of occupation.

Local tradition certainly ascribes great antiquity to the remains of Shahristān, but in spite of inquiries made with due care and caution I failed to hear of the name ' Rām Shahristān ' being applied nowadays to the site. It is mainly on the strength of such a designation that Mr. Tate has proposed to identify the site with the Rām Shahristān of which a passage of Istakhrī (tenth century A. D.) quoted by Sir Henry Rawlinson states that it was the ancient capital of Sīstān, then lying in ruins and situated on the high road to Kirmān at a distance of three marches from Zaranj.[2] The latter place, the early medieval capital, is, by common belief, and it seems rightly, located at Nād-'Alī, about 12 miles to the north-east of Shahristān. Hence the distance, if correctly indicated, clearly points to some site farther away to the south-west.[3]

Alleged identity with ' Rām Shahristān '.

From Shahristān I visited the remains known as *Ātish-kadah* or *Ātish-gāh*, ' the fire-temple ', situated to the west of the village of Kimmak and at a direct distance of about 6 miles from the former site. They occupy the northern extremity of a narrow ridge of clay which rises quite detached, like a Mesa, close to the wide belt of ground liable to inundation from the Rūd-i-Sīstān.[4] The

Site of *Ātish-kadah*.

[1] Owing to its commonness at Shahristān, I omitted to include more specimens of this ribbed ware among the pieces brought away; for the type see Pl. CXV, Gha. 02, 8.

[1a] Cf. also Mr. Andrews' ' General Note ' in Chap. XXX. sec. iii.

[2] Cf. Tate, *Seistan*, pp. 194 sq. For Sir Henry Rawlinson's quotation, cf. his ' Notes on Seistan ', *J. R. Geogr. Soc.*, 1873, p. 283.

[3] Sir Henry Rawlinson had for this reason suggested Rāmrūd (see below, ii. p. 947) as a likely location for Rām Shahristān. It is true the ruins now known as Rāmrūd are of recent date. But to the NE. of that site I found remains of a far earlier period; cf. below, ii. pp. 951 sqq. The direct distance to these from Zaranj (Nād-'Alī) is about 56 miles on the map.

It ought to be mentioned that the name *Shahristān*, not Rām Shahristān, is shown as that of the site above discussed in the record of the Sīstān survey as originally reproduced.

[4] For a brief reference, cf. Tate, *Seistan*, pp. 192 sq.

ridge extends from SSE. to NNW., and its northern portion (Fig. 486), about 160 yards in length, rises to a height of about 60 feet near where a fosse-like little Nullah cuts it off from the rest. The direction of the ridge shows that, like that of Shahristān, it is an outlier of the Dasht plateau to the south. On the steep southern side of this Nullah a small cave, about 10 feet square, has been cut into the clay with a niche at its back. Drift-sand fills the interior to about 3 feet from the roof. To the east there adjoins a smaller excavation of irregular shape. On the top of the ridge nearest to the Nullah lie the remains of a walled enclosure about 72 feet square, as seen in the sketch-plan, Pl. 57. Its walls, about 4 feet thick, are badly decayed and on the east barely traceable. Beyond this little fort there rises, at a distance of only 10 yards or so, the ruin of a smaller walled enclosure with an outer wall about 32 feet square. This is separated from a circular tower within by a passage about 8½ feet wide. The inner wall rises to a height of about 9 feet above the debris-filled passage and shows loopholes, apparently in two rows. Remains of two small structures survive at short distances to the east and north of this tower.

Conspicuous ruined structure.

At the northern end of the ridge, where its top falls off in height and narrows to little more than 20 yards, rises a ruin of quite imposing appearance (i, Fig. 488). It consists, as the detail plan in Pl. 57 shows, of a hall measuring about 35 feet by 27 within, approached through an anteroom about 17 feet wide. The walls, about 5 feet thick and built of sun-dried bricks 16″ × 11″ × 4″ on the average (a size found also at Shahristān and Kōh-i-Khwāja), still rise in places to a height of about 20 feet. Remains of vaulting or arches which once carried a dome were traceable on the western wall of the hall. They showed masonry of the same type as at Ghāgha-shahr, with the long side of the bricks laid on edge parallel to the curve of the voussoir. In the middle, the greater part of the north and south walls has disappeared, probably owing to the erosive action of the prevailing wind, the *bād-i-sad-ō-bīst rōz* of Sīstān.[5] This makes it impossible to determine the main entrance of hall and anteroom. But on the right of the southern wall of the hall there is a high vaulted passage about 5 feet wide opening from the anteroom into the former.

Likely place of Zoroastrian worship.

This conspicuous structure presents distinct interest. Taking into account its plan and the limited ground available on either side, it is clear that it could not have been intended either for defence or for use as a residence. Hence importance must be attached to the name *Ātish-kadah* or *Ātish-gāh*, 'place of fire', which authentic local tradition assigns to this ruin. The survival of such a genuine tradition can easily be accounted for if we recall how Zoroastrian creed and worship lingered on in Sīstān right through the Middle Ages, just as they have to the present day at Kirmān and Yazd. The two oldest MSS. of the Vendidad are shown by their colophons to be descended from a MS. copied in Sīstān in A. D. 1205 by a Zoroastrian priest who had come there from India to obtain religious information for the Pārsīs.[6] Even as late as A. D. 1511 a letter brought to India by Pārsī traders gives the figure of 2,700 souls as that of the Zoroastrian community living in Sīstān, then apparently the largest in the whole of Īrān.[7]

Antiquity proved by pottery.

That the abandonment of the site, however, must date back to a far older period than that which saw Zoroastrian religion and cult slowly die out in Sīstān, is clearly proved not only by the far-advanced decay of the structure just described but also by the types of the abundant potsherds found at the site. The great mass of the fragments belong to the well-made 'ribbed' type which prevails at Ghāgha-shahr and is illustrated in Pl. CXV. A rich red colour-wash on the surface characterizes most of these ribbed pieces, as well as the fragments of decorated ware found there, of which some specimens are described in the List below and reproduced in Pl. CXV. It deserves to be noted that I failed to find a single piece of glazed ware. As an indication of the value which the evidence of pottery debris may claim in Sīstān, I may refer to the ruin of a small walled enclosure,

[5] Cf. below, ii. pp. 949 sq. [6] Cf. West, in *Grundriss d. iran. Philologie*, ii. pp. 82, 129. [7] See *ibid.*, ii. p. 125.

measuring about 44 yards by 18 inside, which we passed about 1½ miles before reaching Ātish-kadah. Our guide declared the two to be of the same age. But while glazed fragments were plentiful, no ribbed pottery was to be found here, and the walls were built of sun-dried bricks, about 11″×7″×2″. Everything clearly indicated construction in late Muhammadan times.

Mr. Tate refers to ruined towers in this neighbourhood which served as watch-towers in recent times, but which he assumed to have been originally Zoroastrian 'towers of silence' or 'Dakhmas'.[*] This induced me to visit from Shahristān a locality to which I heard the name of *Dakhma* actually applied. It is probably that to which he alludes as being situated on a mound by the side of the track leading past Shahristān to Nasratābād. A little beyond the village of Malik-Haidar and close on 4 miles beyond Shahristān a small gravel-covered plateau bears some decayed sepulchral domes amidst Muhammadan graves. The name suggests that the place was once used for disposing of the dead in the orthodox Zoroastrian fashion; but no trace of a Dakhma survives. About a mile to SSW. another little plateau rising about 30 feet above the plain bears a circular walled enclosure about 80 feet in diameter, built of stamped clay, with a gate opening about 6 feet wide. Some 60 yards off to the north there is another of the same type, over 140 feet in diameter. These enclosures, which looked as if intended to shelter sheep, account for the name *Ākhur*, 'manger', by which the place is known. This is applied in Sīstān to any ruin of more or less circular shape and usually associated with Rustam's legendary steed Rakhsh. There was nothing here to suggest a Dakhma. Two ruined square towers crowning small isolated mounds some 200 and 300 yards off to the west and north-west are proved by their small bricks to belong to Muhammadan times.

Site known as *Dakhma*.

SPECIMENS OF POTTERY COLLECTED AT SHAHRISTĀN

**Fragments of plain pottery. Shahr. 04, 05, 015, 018.** Plain. Red, well washed. *04*, flat, with chamfered edge. 2¼″×2⅜″. *05*, shows very faint rib-marks. 2⅛″×1⅞″. *015*, shows ribbing more pronounced on lower edge, gradually dying away to perfectly smooth surface near neck. 5⅜″×3⅜″. *018*, part of base of jar with simple disc foot; a faint incised annular line above and perhaps a potter's mark (character ?) within an ellipse on bottom. Ch. 3⅜″.

**Shahr. 012, 035, 039.** Plain, red, with richer red surface, burnished in bands and lines. *012*, dull surface. 2¼″×1¼″. Pl. CXV. *035*, 2″×2″. *039*, has two very thin burnished lines, wide apart, and a few incised annular lines inside. 1⅝″×1⅜″. Pl. CXV.

**Fragments of decorated pottery. Shahr. 02.** Mouth with strongly everted lip. On shoulder a row of leaf impressions, spatulate shape, filled with faint 'herring-bone' hatching. 3⅛″×2⅜″. Pl. CXV. *03*. Shoulder and part of neck. A raised annular band with row of dents made with blunt stick. 3⅜″×2⅜″. Pl. CXV. *09*. Loop handle with part of lip and shoulder. Handle impressed with row of triangular dents. Upper surface of lip with similar ornament but larger. Raised rib round centre of neck ornamented as handle. At root of neck a band of indented triangles. The two zones of neck separated by the centre rib are ornamented with deeply cut large triangles. H. 2⅜″; hor. ch. 2⅜″. Pl. CXV. *023*, shows three rows of closely impressed leaf shapes with square 'gradini' serrations. A slightly raised annular line below. 2⅜″×1⅜″. Pl. CXV. *010*. Thickened simple lip with raised band below and obliquely drawn, faintly combed festoon ornament below band. Upper edge of lip has series of small notches. 2¼″×2″. *011*. Shoulder of vessel with mouth. Outside, a raised band with shallow dents. Below, traces of incised curves. 3″×1⅞″. Pl. CXV. *014*. From shoulder of large jar. Divided into zones by incised lines. Beginning at top, a row of triangular dents. Next a zone of incised meander with small triangular dent at each bend above and below. Below, a narrower zone of roughly drawn meander with a few dents. 5⅜″×3¼″. Pl. CXV. *017*. Part of flat circular disc (lid ?); shows circular band of two shallow incised lines with the intervening rib dented. Within circle, a band of combed festoon. Without, bands of combed meander. 2⅛″×2⅜″. Pl. CXV. *033*. Probably part of very large vessel. Ornamented with band of fluting, a row of impressed rings and channels. Below, a zone of large zigzag or triangles composed of lines of impressed rings. 4″×4″×⅜″. Pl. CXV. *036*. Part of mouth and neck. Below lip, outside, a raised rib with notches. Above and below, roughly incised single-line meanders. 2″×1¼″. Pl. CXV. *037*. Part of shoulder of jar. A broad zone at base of neck divided into panels ('triglyphs') of straight vertical combing alternating with wavy or zigzag vertical combing, very shallow. Above zone horizontal wavy combing, and below zone festoon combing. 3″×1⅜″. Pl. CXV. *08*. Part of shoulder and loop handle of vessel. Round

[*] Cf. *Seistan*, p. 191.

shoulder a projecting flat band ⅜" broad, its lower edge cut into regular 'vandyke' points. 5"×3½". Pl. CXV.

**Shahr. 041. Fr. of pottery.** Part of shoulder; has double-line incised band and festoon combing above and below. 3¼"×2". Pl. CXV.

**Specimens of incised pottery.** The following have leaf-shaped impressions placed in a single row variously spaced round junction of neck and shoulder of vessel. The form of leaf is triangular with serrated edges and is perhaps derived from the vine. The upper part generally deeply impressed and the base scarcely at all. A variation of the stamp is a smooth-edged pine-cone shape used on Shahr. 030.

**Shahr. 06.** Deeply impressed. 3⅜". *016.* Small leaf on slightly raised flat band. 4⅝". *019, 021.* Small leaf without raised band. 3¼", 2½". *022.* Larger leaf, deeply impressed and close together. 4½". *024.* Small leaf without raised band. Square point to leaf. 2⅝". *027.* Naturalistic leaf lightly impressed. 3". *030.* Pine cone, faintly impressed. 3½". Pl. CXV. *034.* Small leaf. 2". *07.* Small leaf cut into seven petal-like divisions by radiating ribs. Below, surface is ribbed with shallow channels between. 4¼"× 3¾". Pl. CXV.

**Specimens of incised pottery; various patterns. Shahr. 01.** Base of large coarse vessel decorated with deep approx. circular depressions about ⅝" in diam. 5¼". *025,* from shoulder of vessel, with two encircling rows of closely packed short vertical incisions. 1⅜". Pl. CXV. *031,* fr. of body of vessel, with raised cable band about ¾" wide. 5¾"×5¼". *032,* fr. of body of vessel, with raised cable band about ¾" wide. 4". Pl. CXV. *040,* fr. with deeply incised zigzag line between two plain lines. Outside the plain lines are irregularly placed 'jabbed' impressions. 1¾". *044,* fr. of roughly made loop handle with fern-like incised ornament on face of loop. 2½". *045,* from shoulder of vessel. Band of double piping with row (?) of rectangular depressions above. 2⅒". Pl. CXV. *013,* fr. from shoulder of vessel, with broad band of festooning made with combing tool. 2½". *028, 29, 40,* frs. from wall of vessel, with annular incised line and bold irregular incised lines below and above. 3½", 3½", 1⅞". *042,* fr. from wall of vessel showing two encircling burnished lines about ½" apart. Above, a row of combed festooning. Below, a band of straight combing and a vertical combed line proceeding from it. Suggests a panelled scheme. 2¼".

**Shahr. 026. Fr. of painted pottery.** Part of large vessel. Inside ribbed in soft broad undulations. Body red, outside buff. Painted in black outline appear what seem to be a pair of legs, from knees downwards, and another object not understood. Very crude. 5¼"×5"×⅜".

SPECIMENS OF POTTERY FRAGMENTS FROM ĀTISH-KADAH SITE

**Atish. 02.** Part of flat circular slab; lid (?). Red, surfaced with thin rich wash slightly burnished. At one end part of three deep concentric circular channels. Rev. plain. 3"×1⅞"×½". Pl. CXV.

**Atish. 03. 06.** *03,* red; part of shoulder and neck of large vessel. Band of impressed palmate leaf forms at root of neck. Below, regular horizontal ribbing. Neck, plain. 4⅝"×4½". *06,* from shoulder of vessel. Dark red with deep red wash outside. Scar where loop handle has broken away. Two impressions of leaf stamp on shoulder. Type of leaf, 'gradini', similar to Shahr. 023. 2⅞"×1½".

**Atish. 04,** from wall of vessel. Red; regularly ribbed, with rather shallow channels. 1½"×2⅜".

**Atish. 05,** from wall of vessel. Red; has faintly burnished annular lines with band of shallow combed festooning above. 2⅝"×2¼". Pl. CXV.

**Atish. 07, 08,** red, with rich red surface wash. *07,* from wall of vessel; plain. Single channel on inner surface. 2⅝"×1¼". *08,* from mouth of vessel. Neck curves inward from lower edge of lip. 1⅜"×1½". Pl. CXV.

**Atish. 09,** from mouth and shoulder of globular (?) vessel; fine red. No neck. Mouth a simple hole in top of globe, but lip delicately rounded. Outside, a pair of thin channels. Above, a single incised scalloped line; below, a single line 'Greek' wave fret. 2⅛"×1⅝". Pl. CXV.

**Atish. 010,** red. Part of loop handle reeded with four reeds. 1⅝"×1¾". Pl. CXV.

**Atish. 011. Pottery whorl;** pierced, red. Echinus-shaped, dished at one side and with raised centre at other. Annular rings round sides and rays on dished surface. ⅞"×⁷⁄₁₆".

## SECTION II.—THE BAND-I-SISTAN AND THE ANCIENT NAME OF THE HELMAND

Irrigation dependent on Helmand barrage.

Before I proceed to describe the ruined sites, all of later date, visited by me north of the Rūd-i-Sīstān, brief reference may be made here to the *Band-i-Sīstān*. It is the great barrage situated about 8 miles south of Shahristān at the point where the Helmand bifurcates into the river branches irrigating the present cultivated portion of Sīstān. It may well claim some antiquarian interest; for it is certain that irrigation in Sīstān, and with it the occupation of the land by a settled agricultural population, must throughout historical times have depended upon the maintenance of great

weirs or barrages similar in type to the present Band-i-Sīstān. Like every terminal river-course where it enters a deltaic area, the Helmand is periodically liable to great shifts of its channel. Such shifts are marked by the abandoned dry beds of the Sana-rūd and Rūd-i-biyābān or Rūd-i-Trākun. That the latter has carried water at widely different periods into the southern delta of Sīstān, now wholly desert, is proved by the ruined sites which I shall have occasion to discuss below.[1]

Seasonal reduction of volume in Helmand.

But whichever channel receives the fertilizing water of the river, the use of this for regular cultivation over a wider area can be assured only if control is maintained over its discharge by means of a barrage. The necessity for this arises from the fact that the drainage which the Helmand brings down from the mountains greatly diminishes after the cessation of the spring rains and the completion of the melting of the winter snow. At the same time heat and winds during the summer and autumn cause excessive evaporation in the plain and thus reduce the water-supply still farther. Hence whatever changes may take place at intervals in the direction of the main channel of the river, owing to the gradual rise of the bed through silting and from concomitant causes, the distribution from it of the available volume of water over the cultivated area must always for a great portion of the year depend entirely upon the maintenance of weirs.[2]

Earlier barrages.

The Band-i-Sīstān is but the latest of a series of such works which at different periods and in conformity to changing conditions served that purpose. Local tradition, supported from late mediaeval times onwards by historical records, assigns to these earlier works positions higher up on the present course of the river as far as the point known as Bandar-i-Kamāl-Khān.[3] There the river, after emerging from the well-marked trough that it has followed all the way below Kala-i-Bīst, makes its great bend to the north, and there its delta may properly be considered to start. The interrelation between these older barrages and the areas that were once cultivated on the Afghān side of the river and now are all desert marked by extensive ruins is a subject of distinct historical and archaeological interest. Its investigation must be left for some qualified student in the future who is able to combine personal examination of those numerous ruined sites with the study of the abundant materials collected by Sir Thomas Ward, the great irrigation expert of the Sīstān Mission. It may, however, be stated with some confidence that those ancient works are not likely to have differed in essential features from the present Band-i-Sīstān, upon the skilful construction of which in each succeeding year the prosperity of Sīstān proper wholly depends.

Construction of Band-i-Sīstān.

As seen in the photograph, Fig. 476, the barrage consists of an earth embankment about 6 feet across on the top, strengthened with fascines of tamarisk brushwood, a material as abundant along Sīstān watercourses as it is on the banks of rivers in the Tārīm basin. Used also as a revetment it enlarges the *band* to about 21 feet in width at the bottom. This has annually to be built in the late summer or early autumn, when the water has fallen quite low. It is then thrown across almost the whole width of the Helmand-i-Kalān or 'great Helmand', from which the two branches of the Rūd-i-Pariūn and the river of Nād-'Alī take off some 10 miles lower down. Only a small channel is left for the water to pass down the main bed, the rest being turned into the Rūd-i-Sīstān, which irrigates the major portion of Persian Sīstān. By March or April the great spring flood of the river sweeps away the whole dam, and the chief concern of the people is then to prevent the two eastern river branches from breaking out of their channels, destroying the heads of local irrigation canals and inundating the cultivated land towards the northern parts of the Hāmūn. The rebuilding of the dam was said to keep about a thousand labourers hard at work for twenty to thirty days. Com-

[1] See below, ii. pp. 972 sqq.

[2] For an account of the several beds followed by the Helmand, cf. Tate, *Seistan*, pp. 127 sqq. Data as to the volume of water carried by the actual river-course, the conditions governing its use, &c., would be very welcome, but were evidently reserved for another record of the Sīstān Mission, not accessible for reference.

[3] Cf. Tate, *Seistan*, pp. 153 sqq.

paring the huge volume of the Helmand in flood with the very limited flow that it carries in the late summer and autumn, a competent judge considers this time-honoured method of creating a temporary main distributary head as that best suited to the hydrographic conditions and the nature of the ground in the delta. If under efficient administration the 'duty' of the water received from the Helmand were raised to the level attained in Egypt and parts of India, works of the Band-i-Sīstān type might well suffice to secure irrigation for all the cultivable soil in the delta.

*Haētumant*, ancient name of river.

I have thought it desirable briefly to point out here the paramount importance of such weirs on the Helmand for agricultural life in Sīstān, not merely on account of its close bearing upon the historical past of the land, but also because it helps to throw light on the name of the river itself. The ancient form of this name as preserved by the Avesta, *Haētumant*, means literally 'having dams', the word *haētu* showing this meaning in a passage of the Vendidād (xix. 30), just like the Sanskrit *setu*, its phonetic equivalent.[4] This designation of the river becomes fully significant if considered in relation with the important part which the annual construction of the great weir in the main bed and the maintenance of the multitude of minor canal heads must have played in Sīstān ever since its river was first harnessed to support settled agricultural occupation. This also may help, perhaps, to account better for the application of the name *Haētumant* to the territory of Sīstān in two Avesta passages (Vd. i. 13; xix. 39).

Classical forms of name.

With regard to the later forms of the name it is interesting to note that the modern designation *Helmand* corresponds to the phonetic rule of Eastern Iranian which replaces the *d* of Western Iranian (Persian) by *l*. We have seen before that the language areas of Eastern and Western Iranian seem to have met in Sīstān, as proved by the double forms Ζαράγγαι : Δράγγαι, &c.[5] The character of Sīstān as a kind of linguistic watershed is curiously brought out also by the varying forms of the name as found in classical texts. By the side of the Ἐτύμανδρος of Arrian, IV. vi. 6, Ἐτοιμάνδρος of Ptolemy, VI. xvii. 17, *Ethymantus* of Curtius, VIII. ix. 10,[6] we have the Ἐρύμανθος of Polybios, XI. xxxiv. 13, and *Erymandos* of Pliny, *N. H.* VI. 25. In the last two forms we clearly recognize an intermediate stage of the phonetic process which in Eastern Iranian first turned the tenuis between vowels, as usual, into a media, hence *t* > *d*, and then caused this *d* through *r* to change into *l*.[7]

## Section III.—THE SITE OF ZĀHIDĀN AND LATER RUINS TO THE NORTH-WEST

Ruins destroyed through irrigation.

The physical conditions prevailing within the actually occupied and irrigated portion of the Helmand delta make it clear that ruins of any antiquity can survive there only if the ground on which they stood has since their abandonment remained unaffected by the moisture and heavy accumulation of alluvium which necessarily accompany both regular irrigation and inundation by occasional floods. Great changes in the course of the river branches constituting the northern, i.e. the actually existing portion of the Helmand delta, and in the canal system dependent upon them, have repeatedly taken place during recent times. They are abundantly attested as regards earlier times by the extensive ruined sites to be found in Afghān territory to the east of the present

[4] This meaning of *Haētumant* is correctly indicated in Bartholomae, *Altiran. Wörterbuch*, p. 1729. The rendering 'furtenreiche', *Grundriss d. iran. Philologie*, ii. p. 393, reflects an earlier interpretation which did not pay adequate regard to the attested meaning of Avestic *haētu* and of Skr. *setu*.

[5] See above, ii. p. 906, note 1.

[6] The description which Curtius gives of the Ethymantus curving in frequent meanders and being used up for irrigation applies so closely to the Helmand that the doubt expressed by M'Crindle (*Invasion of India by Alexander*, p. 184) as to the identity of the river with the Erymanthos of Polybios and the Hetymandros of Arrian was not justified.

[7] Cf. Darmesteter, *Chants populaires des Afghans*, p. xxv.

cultivable area. But within the Persian portion of the northern delta, to the west of the Helmand-i-Kalān and its terminal continuation, the Siksar river, such areas as had at different periods been deserted owing to failure of irrigation or other causes, such as destructive invasions, have again and again been brought under cultivation when changes in the river restored irrigation facilities or human factors permitted the reclamation of fertile ground that had been abandoned. Thus extensive ruins are known to have disappeared there within living memory, buried under the heavy alluvium deposited by river branches escaping into new channels, or effaced by resumed cultivation.[1] These brief observations will suffice to explain why, apart from a few sites such as Shahristān and Ātish-kadah occupying little island-like outliers of the ' Dasht ' plateau, practically all remains surviving above ground within the limits above indicated belong to Muhammadan times.

Ruined town of Zāhidān.

By far the most extensive and conspicuous of such remains are those of the ruined town known as Zāhidān, which local tradition, probably with good reason, considers to have been the Sīstān capital besieged and taken by Tīmūr (A. D. 1383). It is situated about 6 miles to the north-west of Shahristān, on a low ridge of clay stretching to the north-west between the old river-bed known as Rūd-i-Nāseru and the wide belt reached by the floods of the Rūd-i-Pariūn. Slight as the elevation of this ridge is, it precludes inundation from either side. At the same time changes in the level of the ground which existing canals from the Rūd-i-Sīstān can conveniently be made to command have prevented the cultivation of the greater part of this broad ridge since Zāhidān was abandoned, probably not very long after Tīmūr's invasion of Sīstān. This accounts for the survival of extensive remains at the site and also for the freedom with which the wind has exerted its erosive action upon them wherever irrigation has not reached.

Walls of citadel.

The ruins of Zāhidān have been described at some length by Mr. Tate,[2] and this, together with their comparatively late date, renders a detailed account here unnecessary. It will suffice to note briefly the essential features of the site and to refer for their illustration to the sketch-plan, Pl. 56.[3] The best-preserved ruin within the walled town is that of the citadel. It consists of an oblong inner fort strengthened by massive towers or semicircular bastions and of two outer enclosures protecting its NE. and SE. faces, also provided with towers. These defences are constructed of sun-dried masonry resting on foundations of stamped clay. The bricks show a fairly uniform size of 12"×6"×2½". Single courses of hard-burnt bricks are to be found inserted at intervals in the walls of the towers and also as a flooring between the stamped clay and the brickwork. Wind-erosion, which is very noticeable in the circumvallation outside and on the ground enclosed by it, has affected the walls of the citadel far less. This seems to point to a continuance of the occupation of the latter and to the repair of its defences for some time after the area outside had been abandoned.

Outer circumvallation.

Outside the citadel there are no structures of large size, but a group of detached buildings which evidently served as quarters. Much drift-sand accumulated amidst and above them has helped to protect them. I noted that their vaultings and arches all showed voussoirs of the usual Western type, instead of the peculiar construction with bricks set on edge with their longer sides along the curve of the arch, as invariably observed at Ghāgha-shahr and also at Ātish-kadah. The walls of the outer circumvallation form an irregular oblong, truncated at its southern end. Its length is a little over 1½ miles and its maximum width about ¾ mile. The enclosing walls, badly decayed for the most part, seemed, as far as I examined them, to consist of a rampart of stamped clay probably surmounted by a parapet of sun-dried brickwork. Semicircular bastions strengthened

[1] Cf. Tate, *Seistan*, pp. 115, 177, 202, 236 sq.

[2] See *ibid.*, pp. 219 sqq.

[3] The preparation of this plan proved necessary since the one inserted after section iii of *Seistan* shows inaccuracies, partly perhaps due to errors of scale or compilation. Thus e. g., the outer NE. face of the citadel is shown as half a mile long against a true length of about 1½ furlongs.

Effect of wind-erosion.

it at intervals and a small quadrangular work guarded the point where a gate known as Darwāza-i-Bakhtiārī led through the north-eastern face. It was of interest to observe here how closely the results of the erosive action of the prevailing wind in Sīstān resemble those which are illustrated so strikingly by the ruins of the Lop and Su-lo-ho basins. The wall facing to the north-west, exposed to the full force of the 'Sad-ō-bīst rōz' wind, has for the most part been eroded nearly to the level of the ground, as shown by Fig. 482, while the lines of wall lying close to the direction of wind still rise in more or less continuous stretches.

Interior of walled enclosure.

The resemblance of the whole site to those surveyed in those distant Central-Asian deserts was made still more impressive by the appearance of the area within the circumvallation. As the sketch-plan, Pl. 56, shows, it is in places overrun by dunes and elsewhere presents a sandy waste covered with tamarisks and thorny scrub. Within and outside the walls near the south-eastern corner the ground left unprotected by vegetation has been furrowed into regular Yārdang ridges from 3 to 7 feet or so in height. At the same time the destruction due to cultivation could be judged by the almost complete disappearance of the circumvallation near the citadel, where fields laid out around the modern village of Zāhidān have invaded the enclosed area. A considerable portion of the interior is covered with Muhammadan graves. Many of them looked quite recent, the area near the Ziārat known as Chihil-pīr forming a favourite burial-place for the neighbouring villages. Wherever the ground near the citadel and amidst the scattered ruins of the town area to the NE. of it has been scoured by wind-driven sand, pottery debris is disclosed in abundance. Much of it is glazed ware, as shown by the specimens in the List below. The absence of ribbed pieces here was significant, proving that occupation of the town did not go back to the pre-Muhammadan period.

Ruin of *Kala-i-Tīmūr*.

About 300 yards beyond the NE. face of the circumvallation there lies a smaller walled enclosure, about 1½ furlongs square, known as *Kala-i-Tīmūr*. The walls facing NE. and SW., though only about 4 to 5 feet thick, are in fair preservation, while those on the two sides directly exposed to the force of the wind have been badly breached or completely effaced, as seen in the foreground of Fig. 482. Near the centre of the enclosed area rises the imposing ruin of a mansion (Fig. 495), double-storied, with vaulted rooms surrounding a central hall about 30 feet by 23.[4] The sketch-plan in Pl. 58 shows the interior disposition of the building. It undoubtedly was intended to serve as the residence of the ruler when regard for safety did not oblige him to seek it within the fortified palace represented by the citadel. The arrangement of the plan suggests that the main entrance lay from the east, where a broad terrace, once probably fronted by steps, gave access to a kind of ante-chamber. At the back of the central hall space was spared in the thickness of one wall for stairs leading to the upper floor. The orientation of the building was, as in all Sīstān structures, old and new, adapted to the purpose of securing protection against the prevailing wind, blowing from a little west of north.[5] The sun-dried bricks measure either 10″ × 6″ × 2½″ or 10″ × 10″ × 2½″. It deserves to be noted that throughout the building the vaulting shows voussoirs with masonry of the regular Western type.

Ruined mosque and *Yakhdān*.

Within the same enclosure rise the ruins of several other structures, as marked in Pl. 56, which probably served for the accommodation of the chiefs' retinue and similar purposes. The largest of these, built against the south-western wall of the enclosure, shows a plan resembling that of the central mansion. At a distance from the latter of about 3 furlongs to the NW., and closely adjoining a line of wall which is traceable for some distance in that direction, the remains are found of two structures which local tradition, probably rightly, considers to have been a Masjid and *Yakhdān*

[4] For a photograph of the interior of this hall, see Tate, *Seistan*, p. 221.

[5] According to McMahon, *Geogr. Journal*, xxviii, 1906, p. 224, the direction varies between 316½° and 333¾°.



479. RUIN OF FORTIFIED POST, R.R. V, SEEN FROM SOUTH.
In foreground line of late canal.



480. SOUTH FACE OF RUINED FORT, BURJ-I-CHĀKAR (R.R. IV).



481. RUINED FORT OF BURJ-I-CHĀKAR (R.R. IV), SEEN FROM NORTH-EAST.



482. VIEW TOWARDS ZĀHIDĀN SITE FROM KALA-I-TĪMŪR.
Eroded wall of enclosure of Kala-i-Tīmūr in foreground.



483. MAIN CIRCUMVALLATION OF KALĀT-I-GIRD SEEN FROM SOUTH-WEST.



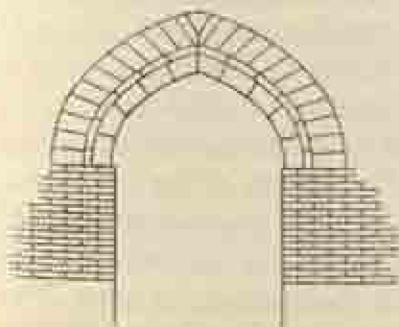
484. RUIN OF FORTIFIED MANSION NEAR BULAI, SĪSTĀN, SEEN FROM SOUTH.

or storage place for ice. The central hall in the former has a niche towards the SW. which agrees with its supposed use as a mosque. The structure beyond has a dome which rests on a wall fully 7 feet thick and only about 4 feet high above the ground. The diameter of the interior is 43 feet. The vaulting as far as preserved appears to consist of horizontal courses of bricks. But the centre may have once been surmounted by a true dome. In order to secure an adequate supply of ice under the climatic conditions of Sīstān it would probably be necessary to have a considerable space flooded with a very shallow sheet of water. This might explain the position of this curious structure at some distance outside the circumvallated areas. The only other purpose for which it might have been built is that of a granary; but this would scarcely be placed outside the protected area.[6]

*Tower of Mīl-i-Kāsimābād.*

Proceeding from Zāhidān to the NW. along the same low clay ridge that bears the ruined town, we passed over a wind-eroded tract for more than a mile. Here the line of an old canal was marked very clearly, with the spoil banks rising some 3 feet above the surface of the ground and the bottom between them quite hard. An abundance of pottery fragments of the same type as at Zāhidān strewed the bare soil where clear of sand. But no 'ribbed' pieces were picked up until we neared the ruined Minār known as Mīl-i-Kāsimābād from a neighbouring village. Here, too, they were to be found only on wind-eroded ground and were rare in comparison with the plentiful pottery remains of manifestly Muhammadan times. Mr. Tate has fully described this ruined tower, which rising over 70 feet above the ground level is a conspicuous landmark.[7] It will therefore suffice to add here that the baked bricks of which it is built measure 14″×8″×2″, and that at the base its diameter inside is about 10 feet and its walls nearly 6 feet thick. Two inscriptions in Arabic executed with bricks in relievo crown the top of the Minār. The lower one mentions Malik Tājuddīn the elder, who died in A. D. 1163–4, and the higher one his great-grandson of the same name. Hence Mr. A. G. Ellis, the translator of the inscriptions, concludes that 'the elder Tājuddīn presumably died leaving his minaret unfinished'.[8] This supplies a clue to the approximate period of the pottery found around the Mīnār and the ruins of small structures close by to the west.

DIAGRAM SHOWING 'TRANSITIONAL' ARCH CONSTRUCTION, MĪL-I-KĀSIMĀBĀD
SCALE: 1 INCH TO 6 FEET



*Different methods of vaulting.*

For this chronological reason some constructive features observed here deserve special notice. The sun-dried bricks used in these square structures all measure 12″×7″×2½″. One of the structures is proved by a prayer niche to have served as a mosque. In this and a couple of other ruins the barrel vaulting was produced by horizontally overlapping brick courses; but below this a kind of revetment was applied with bricks set on edge along their longer side after the fashion seen in the arches at Ghāgha-shahr. But in one small cella I noticed this revetment used in what looked like a transition form of arch construction. There a true vertical arch of Western type was lined with a revetment of the kind just described, and between the two a single brick course was inserted, as seen in the diagram, Pl. 54. The vertical arch showed wrong construction, as the bricks composing it did not radiate from a centre and there was no proper

[6] I may note here that we failed to trace the 'natural mound' believed by Mr. Tate to be identical with *tappa* from which Tīmūr, according to his own account, surveyed the capital of Sīstān before his attack; cf. *Seistan*, pp. 55 sq. Mr. Tate pictures in detail the view from this mound, as it is supposed to have lain before Tīmūr's eyes, and marks the mound in his plan about half a mile from the SW. corner of the circumvallation; cf. also *ibid.*, p. 222.

[7] See *ibid.*, pp. 268 sqq., with photograph.

[8] Cf. *ibid.*, p. 270.

keystone. The whole looked as if the mason had tried to apply a new style of vaulting but did not fully understand its principle.

Site of *Ghala-tappa.*

About one mile to the NW. of the last-named site there rises above the neighbouring ground a low mound known as *Ghala-tappa.* Its top bears a double circumvallation of stamped clay, of oval shape and badly decayed. The interior measures about 340 feet by 240. The outer enclosure rises about 10 feet above the present level of the fields near by and measures from 52 to 64 feet across; the inner rampart is about 16 feet higher and varies from 24 to 28 feet in thickness. The far-advanced decay suggests that this is an ancient site, and the abundance of pottery debris, ribbed and plain, of the same type as prevails at Ghāgha-shahr fully supports this conclusion. The List below also includes specimens of glazed ware and of pieces decorated with simple designs incised or raised, both types far less frequent.

Ruins of Muhammadan period.

From my camp at the small village of Kāsimābād, which has given its name to the Minār above described, I paid short visits in succession to a series of ruins scattered in groups to the north and north-west. They occupy ground slightly raised above the level which is reached by the inundations of the Rūd-i-Pariūn on the east and by the rare floods that occasionally fill the old bed of the Rūd-i-Nāseru on the west, and to this fact they obviously owe their preservation. They all belong to the Muhammadan period, as had already been correctly recognized by Mr. Tate, who briefly refers to them.[9] The remains, which are mainly those of old mansions, fortified dwellings, or windmills, are so numerous and extend over so wide an area that a detailed survey would have required far more time than it was possible for me to spare. I shall therefore have to content myself with short notes on their position and general features, and an indication of such observations as have a bearing on their probable date.

Ruined dwellings near *Bībī-dōst.*

From a point about 1½ miles beyond Ghala-tappa lines of ruined dwellings stretch for more than half a mile northward, as far as the extensive graveyards that cluster around the Ziārat of Bībī-dōst. The ground here and at the other sites to be mentioned in this vicinity is protected from wind-erosion by abundant scrub. Yet the ruins all show decay more advanced than that observed at Zāhidān. Many of them are very massively built and comprise tower-like structures evidently intended to assure safety in case of disturbances (Fig. 497). As far as my examination extended, I saw only vaults built in the same fashion as first observed at Ghāgha-shahr, with bricks set on edge along the curve of the vaulting. The indication thus furnished of a date somewhat earlier than that of Zāhidān finds support in what I noted of the potsherds. By the side of the abundance of plain glazed fragments in bright greens and blues, pieces decorated with painted and glazed patterns such as abound at Zāhidān seemed very rare. Plain 'ribbed' ware was represented, but not as plentiful as at Ghāgha-shahr. The size of the bricks was the same as in the ruined structures adjoining the Mīl-i-Kāsimābād. In one ruined hall the remains of squinches showed the same fashion of vaulting as seen in the entrance hall, Gha. ii, at Ghāgha-shahr; the side walls are decorated with arched niches formed by overlapping brick courses.

Ruins near *Rindān.*

Proceeding about 5 miles to the north and crossing several 'Shēlas' or narrow beds filled by the Rūd-i-Pariūn at flood time, we reached the low mound of *Rindān*, presenting traces of former occupation in the shape of pottery debris. To the east of it extends a narrow belt of badly decayed ruins for over 3 miles from SE. to NW., evidently aligned on an old canal which lay parallel to the present beds of the Rūd-i-Pariūn on either side of this area. The most striking of these ruins are the very massive remains of a *Chiginī* or windmill which still rise to close on 40 feet in height. Its type is illustrated by another and probably later ruin of a windmill shown in Fig. 498. The

[9] See *Seistan*, pp. 235 sqq.

span of what must have been the vaulting of a room over which once rose one of the two large wheels of the mill measures 21½ feet.

To the east of the small village of Burj-i-Afghān, situated about 3 miles NW. of the Ziārat of Bībī-dōst, rise the scattered ruins of large mansions, imposing even in their state of far-advanced decay. Several are built on massive foundations of stamped clay and show their defensive purpose by their plan. The walls of the central hall are in most cases decorated with rows of pointed arches in brickwork. What vaults I examined showed slanting voussoirs of the same type as at Ghāgha-shahr. But in the ruin represented in Fig. 496 I noticed the same transitional combination of a true arch with a revetment of bricks set on edge along the curve, as described above in the case of a structure at Mīl-i-Kāsimābād.[10] The usual size of the bricks here and at the ruins of Kala-i-nau to be presently noticed is 12″ × 12″ × 2″. About a mile to the east of the village lies a small circular fort, about 210 feet in diameter within, defended by a double enclosure. The inner one, built of stamped clay and 18 feet thick, still rises to close on 20 feet in height, while the outer one, at 40 feet distance and of far less massive construction, has almost completely been effaced except on the south. 'Ribbed' potsherds were noticed in plenty, showing mostly such softly rounded ribs and channels as are seen in B.-i-A. 01, Pl. CXV. Specimens of glazed ware and of fragments otherwise decorated are described in the List below and illustrated in Pl. CXVII.

Ruined mansions of *Burj-i-Afghān*.

The last group of ruins visited lies to the west of the bed of the Rūd-i-Nāseru, the nearest of them some 5 miles to the NW. of Burj-i-Afghān and beyond the well-tilled lands of Bulai village. Among scattered dwellings, for the most part badly decayed, evidently owing to moisture, rise two mansions of imposing dimensions. Fig. 484 shows one of these, with its high pointed gateway and the multiple rows of arched niches decorating the walls of the large halls within. Owing to the moisture which reaches this area from the spillage of canals, the surface is covered with scrub or else shows salt-incrustation. Hence very little pottery debris is to be seen among these ruins. Judging from their general appearance and the absence of vaulting of the Western type, I believe them to date from approximately the same early Muhammadan period as the rest of the sites visited from Kāsimābād.

Ruins near *Bulai* village.

In the closely occupied tract of Miān-kangī stretching from the Rūd-i-Pariūn to the Siksar river, which marks the Perso-Afghān border, remains of any antiquity above the ground seem to be confined to the bridge of Takht-i-pul and the ruined mound of Kārku-shāh, both described by Mr. Tate.[11] The remains at the latter are those of a small stronghold built on what obviously is an isolated clay terrace or Mesa. Most of the ground on the top and slopes is occupied by the dwellings of a modern village. On the slope along the NW. side of the mound, the line of a much-decayed wall, built of sun-dried bricks or stamped clay and apparently strengthened by bastions, survives for over 100 yards. Above this the line of an inner enclosure is traceable for about 26 yards. Within this rises the ruin of what may have been a central keep. Judging from its NE. wall, which alone shows its full length, 46 feet outside, the whole of this structure was very solidly built. This wall, 8 feet thick, had a plinth of burned bricks, which now is exposed to a maximum height of over 5½ feet. These bricks are of the unusually large size of 25½″ × 16½″ × 2″. The upper portion of the wall is built of sun-dried bricks not differing in size from those found in early Muhammadan ruins; it still stands to a height of 11–12 feet.

Remains at *Kārku-shāh*.

Kārku-shāh in all probability marks the position of *Karkūyeh*, an important place mentioned by early Arab geographers on the route from Herāt to the capital of Sejistān; for its distance from Zaranj, as recorded by Istakhrī, three farsakhs, agrees closely with that from Kārku-shāh to Nād-'Alī.[12] But the scanty remains just described afford no indication of the position of the

*Karkūyeh* of Arab geographers.

[10] See the arch to the right of the man in Fig. 496.

[11] Cf. Tate, *Seistan*, pp. 205 sqq.

[12] Cf. Sir Henry Rawlinson's 'Notes on Seistan', *Journal R. Geogr. Soc.*, 1873, pp. 286 sq., 294.

Bridge of *Takht-i-pul.*

ancient fire-temple which some of those Arab geographers mention at that town. The ruined bridge of baked bricks now for the most part buried in silt, and known as Takht-i-pul, lies about 2 miles to NNW. of Kārku-shāh. As this is the direction which the main route from Zaranj (Nād-'Alī) towards Juwain and Herat must have followed, there is much to support Mr. Tate's assumption that this bridge was probably the same as that mentioned by Istakhrī's itinerary between the stages of Basher (Pēshawarān) and Karkūyeh.[13]

Antiques brought from sites on Afghān side.

I may conclude this account of ruins of the Muhammadan period with brief notes on the specimens of pottery fragments and similar small remains brought back by some Balūchīs whom Rustam, a local 'treasure-seeker', had sent out to search on my behalf certain ruined sites in the Afghān portion of Sīstān. I had no means of verifying the provenance of the specimens brought to me and shown in the Descriptive List below, but the type of the potsherds, mainly glazed ware of Muhammadan times, seems to agree in the case of Nād-'Alī and Surhdik with the information furnished by Mr. Tate's report as regards the occupation of these sites.[14] The pieces said to have been brought from Takht-i-Rustam are mostly of the 'ribbed' variety and suggest an earlier date for the site, as also does the name. Its position is marked in Degree Sheet No. 30. E. on the northern edge of the Hāmūn-i-Pūzak. The exact position of 'Pusht-i-gau' is uncertain; it is probably the same as the *Pōst-i-gau* referred to by Mr. Tate,[15] a site to the north of Chakānsur. Saliān was stated to be a ruined site to the east of the Farāh Rūd near Pēshawarān, and is marked as a modern hamlet with a query in Sheet No. 30. E. Sār-o-tār, from which the small bronze objects, Pl. CXVI, were said to have been brought, is an important site in the desert east of the Helmand.[16]

Decorated pottery from ruins NW. of Sīstān.

The fragments of decorated pottery, mainly glazed and painted, marked with A and B in the List, were collected by Afrāz-gul Khān in 1918, while engaged on survey work in Eastern Persia, at two ruined hill forts situated to the NW. of the Sīstān basin. The site of A was described by him as being on a hill about 14 miles to the east of Sarbīshah, a place on the Sīstān–Birjand high road. The ruins from which the pieces of B were brought stand on a hill rising some 500 feet above the same road near Khunik where it is joined by the road coming from Neh. Judging from the style of decoration, the specimens from these two places (Pl. CXVII) seem to belong approximately to the same period as the pottery of Burj-i-Afghān, and hence their inclusion here seemed justified.

## Section IV.—LIST OF POTTERY SPECIMENS AND OTHER SMALL OBJECTS FROM LATER SITES IN NORTHERN SĪSTĀN

### SPECIMENS OF POTTERY FRAGMENTS FROM ZĀHIDĀN SITE

**Zah. 01. Fr. of pottery.** Dark grey, very hard. Plain; prob. overburnt and distorted by heat. 1¼″×1⅞″.

**Zah. 02, 03, 04. Frs. of pottery dishes.** *02*, red, coated with dark green glaze over pattern in grey. Edge grey with series of oblique narrow leaves as border on flat margin of dish. Within an annular grey line a series of willow-leaf shapes in solid grey radiate from centre. A small triangular leaf shape grows on line and points down between willow-leaves. 3¾″×3″. *03*, buff. Similar glaze to above. Floral border in solid grey and bold pattern. Glazed outside and a few bold grey lines. 2⅜″×2¾″. *04*, similar to 02 but lighter colour. Edge solid grey, two inner annular lines and small repeating scroll in grey within field. 1⅝″×1⅞″.

**Zah. 05, 09. Frs. of pottery** (found NW. of Z. on eroded ground). Regularly ribbed outside. *05*, dark grey with brown-grey surfaces. 2⅞″×1½″. *09*, red. 2⅛″×1″.

**Zah. 06, 07. Frs. of pottery,** prob. from same vessel. Decoration, incised bands of triangles, with groups of lines arranged fan-wise between. Av. 1¼″×1⅛″.

**Zah. 08. Fr. of pottery,** from edge of dish. Graceful curve in section with change of direction emphasized on outside by slight ridge. Lip grey. Border alternate

[13] Cf. Tate, *Seistan*, pp. 205 sq.; Rawlinson, *loc. cit.*, p. 294.

[14] Cf. *Seistan*, pp. 199 sqq.

[15] See *ibid.*, p. 187 sq.

[16] Cf. *ibid.*, pp. 224 sqq.

elongated vesica forms in grey outline, and pairs of lines. Each has a dab of turquoise on it. White glaze discoloured. 1⅞"×2¼".

**Zah. 010. Fr. of plaster (?).** Two surfaces of white plaster (lime ?). Within, a surface of brick-red plaster. 2⅜"×1⅜".

**Zah. 011. Fr. of pottery;** from flat dish with part of low ring foot; red. Glazed white with carefully drawn scrolls and clouds in cobalt blue. 1¾"×1⅜".

**Zah. 012. Fr. of pottery.** Buff; prob. from near centre of dish. Inner surface glazed with fine deep turquoise. Pattern shows two leaves, veined, in black only; well painted. Patch of glaze on back. 1⅜"×1".

**Zah. 012. a. Fr. of pottery;** from edge of dish. Buff with white glaze both sides. Inside, a border of very stylized curves on ground hatched in various directions in fine cobalt. Outside, a single line where contour changes. 2⅜"×1¾".

**Zah. 013, 014, 015. Frs. of pottery;** from dishes. White, gritty body. White glaze over blue pattern outlined grey. *013*, shows on inside thin black angular stems with thin five-petalled blossom, with patch of blue on it and another near edges. Outside, glazed, and part of black scroll. 1⅜"× 1¼". *015*, from scalloped edge of dish; body as above. Inside border, between pairs of annular lines, thin stems and flowers outlined black, with patches of blue on flowers. Outside, four pairs of thin grey lines. 1⅞"×1". *014*, from edge of dish; body as above. White glaze. Inside, between a border of two pairs of lines in grey, four-petalled flower with scrolling stems and leaves each side. Flowers and leaves washed in blue. Outlines grey. Outside, two pairs of annular lines. 1½"×1⅜".

**Zah. 016. Fr. of pottery.** Pink body. White glaze one side and bold pattern of large petal-shapes in black, between black lines. 1⅝"×1½".

**Zah. 020. Fr. of pottery.** Thin porcelain; shows gently out-turning lip of Chinese type of bowl. White body, vitrified; white glaze. Conventional pattern both sides, in soft hazy blue. 2¼"×¾".

**Zah. 021. Fr. of pottery;** from thin lip of bowl. Glazed white all over. Body white and gritty. Inside, within a pair of fine blue lines, a stem bearing flower and small leaves; all in blue outline with wash of blue on flower and leaves. Outside, pairs of thin annular lines, with a small circle surrounded by small buds. Washes of blue to strengthen pattern. ⅞"×13⁄16".

## SPECIMENS OF POTTERY FRAGMENTS FROM GHALA-TAPPA

**Gh. Ta. 01, 07, 09, 015, 016, 017. Frs. of pottery glazed green.** *01*, fine brown-grey body with grey-green glaze on inside and part outside. 1⅞"×1¼". *07*, grey-green glaze inside, thick wave of dark green on part of outside. 1"× ⅞". *015*, buff sandy body with dark green glaze both sides. 2½"×2". *016*, buff sandy body. Part of flat rim of bowl covered with dark green glaze. 1⅞"×⅞". *017*, buff body. Fr. of rim, glazed both sides green. 2"×1⅜". *09*. Outside, ⅜" below edge, a raised band closely notched with long upright notches. Inside, two thin incised border lines widely spaced. Glazed all over yellow-green. Badly flaked. 1⅞"×1¼".

**Gh. Ta. 02. Fr. of pottery vessel.** Wheel-made. Warm buff, green-buff outside; plain. 1¾"×1¼".

**Gh. Ta. 03–05. Frs. of pottery vessels.** Wheel-made; terra-cotta; decorated with curves and meanders made with toothed tool. *03*, has three vertical curved bands. Between a vertical meander. All made with four-pronged tool. 2½"×2". *04*, curves, and meanders made with six-pronged tool, and deep annular line round shoulder. 2¼"× 3". *05*, curves made with five-pronged tool. 3"×2¼". Pl. CXV.

**Gh. Ta. 06. Fr. from pottery vessel.** Wheel-made; terra-cotta. Coated with thin pale pink slip, and painted inside with band of plain red, outlined on inner side with dark brown line. Within this, part of pattern in light brown lines and a spot of brilliant green. The whole glazed, but now dull. Light brown and green have 'run' in the firing. 1⅛"×1⅛".

**Gh. Ta. 08. Fr. of pottery vessel.** Wheel-made; pale terra-cotta. Outside divided into two bands by groups of incised annular lines. In one band is a twelve-petalled rosette, delicately modelled in relief, and in the other a broad tassel shape placed sideways. These ornaments are done with stamps. 1½"×1". Pl. CXV.

**Gh. Ta. 010, 011, 013, 014. Frs. from wall of pottery vessels.** Wheel-made; terra-cotta. Ribbed outside similarly to Gha. 02, &c. *010*, has unribbed space at one end. 2⅝"×2¼". *011*, very deep rich colour, has plain band between ribbed portions. 3⅝"×2⅜". *013*, burnt black from inside to near outer surface. 1½"×2⅜". *014*, very evenly ribbed. 1⅜"×2⅜".

**Gh. Ta. 012. Fr. of pottery vessel.** Wheel-made; terra-cotta with fine surface colour. Regularly lined with annular rings inside, and irregular rings outside. 2½"×2⅜".

## SPECIMENS OF POTTERY FRAGMENTS FROM BURJ-I-AFGHĀN AND BĪBĪ-DŌST RUINS

**B-i-A. 01. Pottery fr.,** from wall of vessel. Red, evenly ribbed with softly rounded ribs and channels. 2⅜"×2⅜". Pl. CXV.

**B-i-A. 02. Fr. of pottery.** Rich red. Incised ornament shows two 'willow-leaves', drawn with triple-toothed tool. From between diverging sides of leaves a triple zigzag hangs vertically; closely resembles 'chalcolithic' painted pattern. 2⅜"×1⅜". Pl. CXV.

**B-i-A. 03, 04, 05. Frs. of pottery;** each having part of heavy ring foot. Turquoise glaze with pattern in grey. *03*, shows thin stems and one solid leaf in dark grey. 3¼″ × 2″. *04*, shows central double circle and stems and scrolled leaves growing from it. 4⅛″ × 2¼″. *05*, shows series of volutes within a double-line circular border. 4″ × 2¼″. Pl. CXVII.

**B-i-A. 06, 07, 08, 023. Frs. of glazed and painted pottery.** *06*, pale terra-cotta. Deep ring foot and part of bottom of bowl. Inside, glaze discoloured to grey, with bold pattern in black relieved with blobs of dark liver-coloured glaze. 3⅞″ × 2½″. *07*, glazed mottled turquoise inside, with roughly painted black star in centre. 3½″ × 2¼″. *08*, glazed dirty white inside, and painted with bold rosette in black outline with large rich green centre. 2⅝″ × 2″. *023*, glazed turquoise inside, and painted in black a conventional tree within a circle. 2½″ × 2″. Pl. CXVII.

**B-i-A. 09. Pottery fr. of cover for bowl.** Shape is prob. circular in plan and slightly domed in section. Glazed in and out with white on which are traces of bright green. Outer surface of side, $\frac{3}{16}$″ deep, is free of glaze and smoothed as though to fit cleanly to mouth of bowl. Top painted in grey black. A border between two pairs of lines painted with suggestion of leaf or cloud in white with black background. Within, highly stylized floral scrolls with large rich green spots (flowers ?) outlined with broad black. 2⅝″ × 3⅜″. Pl. CXVII.

**B-i-A. 010. Fr. of pottery bowl.** Pink buff; pair of slightly incised lines. Glazed inside greenish white, same outside. 2¼″ × 1⅝″.

**B-i-A. 011, 017. Frs. of pottery bowls.** *011*, pale red, hard. Pale turquoise glaze with delicate scroll pattern in black and blue spots. Crackled. 1⅞″ × 1$\frac{3}{16}$″. *017*, fr. of same or similar bowl. 1⅝″ × ⅞″.

**B-i-A. 012, 014, 016, 027. Frs. of pottery bowls.** *012*, pale red, rather sandy. Inside shows broad band of black lattice under white glaze. Surface lustred. 1⅞″ × 1½″. *014*, fr. of pottery bowl. Red, with richer red surface. 1½″ × 1″. *016*, fr. of similar ware, but glazed also outside over a single black line. ⅞″ × ⅝″. *027*. Upper surface of rim, broad, flat, and painted deep blue-black. White glaze on both sides; over black line scroll pattern with blue patches (on upper face). 1″ × 1″.

**B-i-A. 013, 015, 018, 019, 020, 021, 024, 033. Frs. of pottery vessels;** glazed various shades of green from yellow-green to turquoise, with linear decorations in black. *018*, has on inside three parallel straight lines and small patch. Outside plain unglazed and heavily ribbed. *019*, inside slightly ribbed, plain glaze. Outside glazed over broad band of black spirals. *024*, outside turquoise glaze, border line and border mottled with black patches and small dots. Gr. fr. *(013)* 3½″ × 2¼″.

**B-i-A. 022. Fr. of pottery vessel.** Outer surface of straight side horizontally and evenly channelled, the channels divided by sharp ribs. Inside, smooth. Glazed in and out rich copper green. 1¼″ × 1¼″. Pl. CXVII.

**B-i-A. 025. Fr. of pottery dish.** Buff, gritty; starch colour glaze. Pattern, inside a cone outlined with broad cobalt band and dab of rich green at point. Cross-hatched in black and bordered outside by black rings. Outside surface shows a few radiating stems in black. 2″ × 1⅞″. Pl. CXVII.

**B-i-A. 026. Fr. of pottery vessel.** Buff; glazed pale turquoise inside and out. Outside, on broad black line is a row of evenly spaced round dots. These are now scars of probably raised pearls (?). Inside, a leaf-form, hatched and outlined with raised dots (scars); the same treatment is applied to other lines. 1¼″ × ⅞″. Pl. CXVII.

**B-i-A. 029, 031–2. Frs. of pottery vessels.** *029*, pale buff, with narrow leaf shape and irreg. scroll incised with three-pointed tool. 1⅝″. *031*, incised ripple band and panel of roughly scratched cross-hatching. 1⅞″. *032*, pale buff. Covered with deep combing crossing at right angles. A projecting, conical, vertically ribbed boss. 1½″.

**B-i-A. 035. Fr. of pottery bowl.** Buff, glazed white, edge painted black. Inside, a border of pairs of upright trefoil leaves outlined with thin grey line, background cobalt. A white band above and below, and cobalt again lower down. Outside, lotus petal arcading in broad cobalt line with interspaces filled with simple pattern in black, and above, an annular line. 1¾″ × 1″.

**Bībī-dōst. 01. Fr. of pottery dish (?).** Painted with floral design in white on dark brown ground. Red body. 1⅝″ × 1¼″.

OBJECTS BROUGHT AS FROM NĀD-'ALĪ RUINS

**Nad Ali. 01–04, 011. Frs. of pottery vessels.** Wheel-made. *01*, buff. Ribbed outside and inside on one side of widest part, the other being plain outside and less ribbed inside. Outside has a patch of dark green glaze and smaller scattered traces, the remainder having all flaked off. 2⅝″ × 2½″. *02*, ribbed on both sides; rest on outside only. Gr. fr. *(03)* 3⅜″ × 2″.

**Nad Ali. 05, 06. Frs. of pottery vessel.** Wheel-made. Light buff. Strongly ribbed inside with alternate broad and narrow ribs. Outside, a band of incised lines. Gr. fr. *(06)* 2″ × 1¼″.

**Nad Ali. 07, 08. Frs. of pottery vessels.** Wheel-made; pale buff. *07*, glazed inside and outside turquoise. 1¼″ × 1$\frac{5}{16}$″. *08*, glazed both sides white, and dark grey-blue on flat surface of rim. ⅞″ × 1¼″.

**Nad Ali. 09, 010. Frs. of pottery vessels.** Wheel-made; terra-cotta. Faint indications of ribs outside. Gr. fr. *(09)* 1$\frac{3}{16}$″ × 2¼″.

**Nad Ali. 012–015. Bronze objects.** *012*, grotesque hawk, body flat horizontally, with indications of wings and tail incised. Neck, slightly thicker, but broad and relatively flat, supporting head in the round, rather owl-like. Legs

broken away. 2"×⅞". Pl. CXVI. *013*, grotesque animal, lion (?), standing, with forelegs fused into one solid mass, and hind legs the same. Tail short and a mere triangular flap close to legs. No details. 1¼"×1⅛". Pl. CXVI. *014*, hollow hemisphere with small loop at crown and six projecting hook-shaped points set equally round edge, one hook broken away. Part of dangling ornament (?). Diam. 1". Pl. CXVI. *015*, miniature plate-shaped object (lid ?) with loop for string in hollow of bowl. Diam. 1"; depth ⁵⁄₁₆". Pl. CXVI.

SPECIMENS OF POTTERY BROUGHT AS FROM PUSHT-I-GAU

**Pusht. 01–4, 08. Frs. of pottery vessels.** Stoneware (?). *01–4*, glazed white, fine polish but crackled. *01*, with grey annular line outside. 1¾"×2½". *02*, part of bowl near bottom. Painted in black lines with washes of bright blue. 1⅝"×2¼". Pl. CXVIII. *03*, painted inside with pale blue lines. ⅞"×1⅜". *04*. Inside, frs. of pattern in black lines with dab of vivid green-blue. 1¼"×1⅜". *08*. Glazed grey-green (celadon) over raised pattern of fern-like fronds. Surface of glaze perfectly level. 1⁷⁄₁₆"×2". All foregoing show very Chinese character. Pl. CXVIII.

**Pusht. 05–7, 09, 010, 012, 013, 016–20. Frs. of pottery vessels,** wheel-made. *05, 06, 010, 013, 018, 019*, glazed dark green, with bold patterns in black. Gr. fr. (*013*) ¾"× 1⅞". *018*, pair of black lines inside; and below, part of solid dense black rosette. ⅞"×⅞". *07*, green glaze much perished, and leaving scrolled black design with leaves, as in Surhdik. 04, in relief. Outside, large volutes as in Surhdik. 04. 1⅝" × 2¼". Pl. CXVIII. *09*, from wall. Glazed white inside with hazy black pattern. 1⅞"×1⅜". *012*, glazed yellow-brown inside. 1"×1". *016*, glazed all over green-blue, very iridescent, with two black lines on flat of rim and one close under rim, inside. 1"×1¼". *017*, glazed white with part of square panelled pattern inside, of broad cobalt blue lines, with thin inner black lines and dashes. Outside, two grey lines. 1"×⅞". *020*, from flat rim like Nad Ali. 08, bright blue on top, white below with two vert. cobalt blue stripes inside. ⅞"×⅞".

**Pusht. 011, 014, 015. Frs. from pottery vessels,** wheel-made. *011*, buff. Irregularly ribbed inside. ⅞"× 1½". *014*, grey, strongly and evenly ribbed inside and out. 1⅝"×1¼". *015*, terra-cotta. Ribbed outside, with trace of glaze (?). 1⅜"×1¼".

SPECIMENS OF POTTERY BROUGHT AS FROM SALIĀN

**Sal. 01, 04, 07, 08, 012–14, 016. Frs. of pottery vessels,** wheel-made; glazed. *01*, pale terra-cotta with rounded annular moulding outside, and glazed ochre yellow inside. 1⅞"×1¼". *04*, pale terra-cotta with rich red slip and remains of black glaze (?) at one end. 1¼"×2". *013*, part of wall of same bowl. Completely covered with black glaze inside, and two spots outside. 1¼"×2". *07*, fr. of thick ring foot and part of wall of bowl. Dull terra-cotta, glazed white inside with part of roughly drawn annular band in grey-black; two pairs of oblique strokes outside band, with dabs of brilliant washy blue-green in spaces between pairs of strokes. 1⅞"×3¾". *08*, from flat rim similar to Nad Ali. 07, pale buff with white glaze on upper part outside, and yellow-white inside. Painted inside with upward curving black line and vertical strokes rising from lower half. Patches of bright copper green, and the same colour on upper surface of rim. 1¼"×1½". *012*, pale grey stoneware (?). White glaze inside with part of series of three overlapping pointed petals outlined blue, and blue background on which part of tendril. 1"×1½". Pl. CXVIII. *014*, glazed both sides pale green-turquoise, with black rim, black annular lines and leaf-like dabs of black. Single annular line outside, below which surface ribbed under glaze. Same type as Surhdik. 04. 1⅝"×1⅝". Pl. CXVIII. *016*, grey-white, glazed both sides white, with purplish patch at one end outside. ⅞"×⅝".

**Sal. 02, 05, 010. Frs. of pottery vessels,** wheel-made; terra-cotta, ribbed outside. Gr. fr. 2⅞"×2¾".

**Sal. 03, 09, 011. Frs. of pottery vessels,** wheel-made. *03*, very pale terra-cotta with pink-buff outer surface. Incised with group of three annular lines; above, band of shallow zigzag in relief; below, two 'willow-leaf' forms. 1⅞"×2". Pl. CXV. *09*, terra-cotta, pink shade outside, with roughly incised festoon. 2"×1⅞". *011*, white-buff. Incised annular lines. Inside channelled. 1⅞"×1½".

**Sal. 06, 015. Frs. of pottery vessels,** wheel-made. Plain excepting for faint ribbing inside. Gr. fr. 1½"×1⅞".

SPECIMENS OF POTTERY BROUGHT AS FROM SURHDIK

**Surhdik. 01, 03, 06, 08. Frs. of pottery vessels,** wheel-made; pale to dark terra-cotta. *01*, glazed pale grey-green inside and on edge. 2⅞"×3". *03*, glazed inside brilliant turquoise prob. over white slip. 1"×1⅜". *06*, dark purplish body, with dark liver-colour glaze, mottled with greenish-grey. 4"×3". *08*, similar in colour and make to 01. 2"×2¼".

**Surhdik. 02, 04, 05, 07. Frs. of pottery vessels,** wheel-made (?). *02*, terra-cotta. Glazed white inside with floral pattern in grey stems with leaves springing from solid root. Traces of bright green spots. 4"×2¼"; foot ⅞". Pl. CXVIII. *04*, dull yellow ochre. Glazed, and painted with black spiral and leaves like Gha. ii. 01. All glaze is perished, leaving black in relief. 3½"×1⅞". Pl. CXVIII. *05*, light grey. Glazed inside green-white over elaborate floral work in black with green patches. Outside, a solid band of black. 1⅝"×2¼". *07*, light grey body, glazed both sides white, with cobalt blue pattern of circle and lines running from it, on inside. 1⅞"×1¼". Pl. CXVIII.

## BRONZE OBJECTS BROUGHT AS FROM SĀR-O-TĀR SITE

**Sar. 01. Bronze seal.** Circular face, with long slightly tapering shank swelling to form large loop at upper end. Device, a system of scrolls of uncertain meaning. Partly corroded. Diam. $1\frac{3}{8}$" ; H. 1". Pl. CXVI.

**Sar. 02. Bronze seal (?),** with roughly semicircular face (plain) and small vertical loop projecting from centre of straight side. On upper side an irreg. pyramidal projection, surmounted by a standing bird. Diam. $\frac{5}{8}$" ; H. $1\frac{3}{8}$". Pl. CXVI.

**Sar. 03. Bronze knob,** rising to low point at top. Below a simple ring moulding, and below a slightly spreading elliptical base, flat on under-side with a pair of transverse sunk lines. H. $1\frac{3}{16}$. Pl. CXVI.

**Sar. 04. Bronze miniature bird,** hawk (?). In place of legs, a sort of short tang. 1" × $\frac{7}{8}$". Pl. CXVI.

## SPECIMENS OF POTTERY FRAGMENTS BROUGHT AS FROM TAKHT-I-RUSTAM

**Takht-i-Rustam. 01–14. Frs. of pottery vessels,** wheel-made; terra-cotta. *01*, part of wall with scar of handle on outside. Below, irregular shallow ribs. $2\frac{1}{2}$" × $3\frac{1}{2}$". *02, 04, 011, 012, 014*, strongly ribbed inside and faintly outside. Gr. fr. $3\frac{3}{8}$" × $2\frac{5}{8}$". *03*, bottom of vessel, with irregularly raised spiral on inner surface. $2\frac{5}{8}$" × $2\frac{3}{8}$". *05, 07, 09, 010, 013*, plain or showing faint irregular ribs inside. *06, 08*, strongly ribbed outside. Gr. fr. 2" × $1\frac{3}{8}$".

## SPECIMENS OF POTTERY FRAGMENTS COLLECTED AT RUINED SITE A, EAST OF SARBĪSHAH

**A. 01–17, 020, 021, 023, 030, 031. Frs. of pottery,** mostly from dishes. White glaze. Painted with arabesque patterns in brown-black, brick red, pink, yellow-green. Pl. CXVII.

**A. 018, 026, 033–6. Frs. of pottery,** pale buff; unglazed; incised. For specimen, see A. 026, $4\frac{3}{8}$" × $2\frac{3}{8}$". Pl. CXV.

**A. 022. Fr. of pottery dish.** Rim with pair of annular lines and floral pattern inside, glazed yellow-green with rich green patches. Pl. CXVII.

**A. 024. Fr. of pottery.** Part of wall of large tubular vessel. Pink-buff body; inside ribbed. Outside decorated with copper green broad scrolling bands on dark brown ground, and glazed. $3\frac{1}{4}$" × $1\frac{3}{8}$". Pl. CXVII.

**A. 025. Fr. of pottery.** Portion of tubular object ornamented with zigzag and vertical channellings glazed blue-green. Pl. CXVII.

**A. 027, 028. Frs. of pottery,** from bowl or bowls. Outturned lip, flat on top. Surface decorated with horizontal and vertical bands, and with stylized mottling in panels. Glaze perished. Pl. CXVII.

**A. 029. Fr. of pottery.** Small oil lamp with spout. Red with white slip. Yellow-green glaze in patches round mouth. Slightly iridescent. Nearly half broken away. Diam. $2\frac{3}{4}$" ; H. $1\frac{1}{4}$". Pl. CXVII.

**A. 032. Fr. of glass,** from nozzle of spout or mouth. Translucent, greenish-white. Band of applied 'cable', roughly made. Broken at both ends. $1\frac{9}{16}$" × $1\frac{7}{16}$". Pl. CXVI.

## SPECIMENS OF POTTERY FRAGMENTS COLLECTED AT RUINED FORT B, NEAR KHUNIK

**B. 01–18. Frs. of pottery vessels.** Buff gritty body, glazed inside (04, 07, 013 also outside) with white and various tints of blue and green. *03, 6, 8, 10, 16*, ribbed outside. *02, 14, 18*, decorated with floral patterns in grey or black. Pl. CXVII.

# CHAPTER XXX

## IN THE DESERT DELTA OF SĪSTĀN

### Section I.—RUINS ANCIENT AND MODERN

Dasht plateau dividing N. and S. deltas.

The southern delta of the Helmand, to the remains of which, so far as they lie within Persian territory, we now turn, is at present wholly desert ground. Ruins and other relics of widely different periods mark its intermittent occupation since prehistoric times, and the desert conditions that now prevail make it possible to trace these periods with comparative clearness by archaeological evidence. On the topographical side, inquiry into the past of this area is facilitated by physical features better defined than those to be reckoned with in respect of the wide expanse of alluvial plain and shifting Hāmūn marshes that constitute the much greater northern delta. The division between the two deltas is formed by a well-marked gravel-covered plateau. It is a north-western extension of the 'Dasht' barrier along the left bank of the present Helmand course, and stretches right up to the edge of the southern portion of the Hāmūn near the village of Warmāl.

Former irrigation of southern delta.

From the southern scarp of this plateau, rising here about 50 feet above the level of the ground liable to inundation from the Hāmūn, an alluvial plain extends to the deep-cut channel of the Shelāgh, a distance of about 30 miles. The latter, in years of exceptionally high floods from the Helmand, such as recur at intervals, carries water from the Hāmūn into the terminal depression of the Gaud-i-Zirrah. The above-mentioned plain, all fertile silt, was capable of being irrigated, over a maximum width of about 15 miles from east to west, by canals which once took off from the mouth of the old bed of the Helmand known as the river of Trākun or Rūd-i-biyābān and now quite dry. This is shown by the map as diverging from the present Helmand river-bed about 36 miles due south of the Band-i-Sīstān at a point called Bandar-i-Kamāl Khān (see Sheet No. 30 F.); after passing westwards in a winding course through the barrier of the Dasht it debouches in several outlets north and south of the ruin known as Yak-gumbaz, close to the boundary line between Persian and Afghān territory.[1]

*Rūd-i-biyābān* branch of Helmand.

Direct historical evidence that this old Helmand bed carried water to the southern delta can apparently not be traced back farther than the time of Tīmūr, and that, too, only if we may trust the traditional location near the Bandar-i-Kamāl Khan of the weir known as Band-i-Rustam which Tīmūr is said to have destroyed.[2] But there is, as we shall see, good reason to assume that this area had been occupied for centuries earlier, and also that this occupation, whatever its extent may have been, did not imply simultaneous abandonment of the northern delta. Information, recorded without definite indication of its sources but probably correct, points to the continuance, down to the close of the seventeenth century, of at least partial cultivation of the area commanded by canals from the Rūd-i-biyābān.[3] According to local tradition a change came about during the reign of Malik Fath 'Alī (A. D. 1692–1721). The Rūd-i-biyābān then ceased to receive an appreciable volume of water, and cultivation along it became restricted to the wide trough of the old river-bed, being dependent on canals that took off from what has remained ever since the only active course

[1] For some account of the Rūd-i-biyābān, 'the waterless river', and the country traversed by it, see Tate, *Seistan*, pp. 129 sqq.

[2] See *ibid.*, pp. 156 sqq.

[3] Cf. *ibid.*, pp. 160 sq.

of the Helmand.[4] Towards the close of the eighteenth century Malik Bahrām Khān, then ruling over Sīstān under Afghān suzerainty, among other irrigation works assured a supply of water to the old channel of the Rūd-i-biyābān sufficient to permit of the renewed cultivation of portions of the southern delta near Hauzdār and Machī in the north and Rāmrūd in the south.[5] But the recovery of this ground was of short duration, and early in the nineteenth century the whole of it was finally abandoned to the desert, together with what cultivation had survived along the Rūd-i-biyābān near the ruins of Trākun and Gina on the Afghān side of the boundary.

Successive periods of abandonment of S. delta.

It is directly due to this present complete abandonment and to the effect of previous similar periods of relinquishment, when this region was completely bereft of surface water from the Helmand, that archaeological evidence of occupation at widely different periods can be traced here with greater clearness than is possible in the main Helmand delta to the north. The remains of approximately the same period are not confined to a particular neighbourhood, but can be found, distributed in layers as it were, over the greater portion of the area. Hence in describing the remains surveyed by me it will be convenient to follow a quasi-historical grouping rather than a purely topographical one. We may well start with the latest ruins; for it was these that I saw first, and their date is attested by living memory.

Trace of unfinished Kārēz.

Proceeding on December 19th by the high road leading south from the present 'capital' of Persian Sīstān, I noticed with interest the striking resemblance of the belt of gravel-covered Dasht crossed beyond the cultivated ground of Lūtak village to the tongues of 'Sai' fringing the terminal basin of the Su-lo-ho. Lines of isolated clay terraces or Mesas rise near the plateau edge, and here, too, they seemed to me to owe their existence to the combined effect of wind-erosion and water action.[6] About 7 miles beyond Lūtak the caravan track across the plateau runs parallel to little decayed earth heaps of circular shape and low in the middle, which my guides pointed out as spoil heaps of an old Kārēz.[7] This Kārēz was said to have been intended to carry water towards the southern delta from near the village of Warmāl, but never to have been finished.

Ruins of *Hauzdār*.

Beyond the plateau the road crosses a wide bay of the area annually inundated from the Hāmūn, and then reaches the ruins of Hauzdār, enclosed by a quadrangular circumvallation. This has its gate on the east face, which measures about 140 yards. Apart from a domed water reservoir (*hauz*), which has given the place its name, the interior is occupied by domed mud hovels clustering around a dilapidated mansion; their construction and condition bear out the local view that occupation of the fortified village continued till cultivation on this tract was abandoned early in the last century. The few scattered ruins, including a high windmill of the usual Sīstān type, to be seen within a radius of about 2 miles to the north and east of Hauzdār, proved all of the same late origin. In all of them the bricks are of small size and the arches and vaults of the regular Western type. The same holds good also of the ruins of the small fortified village known as Kundar (Fig. 490), situated about 4 miles to the SW.

Remains of *Ākhur-i-Rustam.*

But a low mound in the same direction rising above the bare flat plain at a distance of about 1¼ miles from Hauzdār (Fig. 489) was found to bear remains of manifest antiquity. They are called *Ākhur-i-Rustam*, being popularly supposed to have served as a manger for Rustam's giant steed. A central mound of brickwork (see the sketch-plan, Pl. 57) rises to a height of about 23 feet above the top of the low mound, but is too badly decayed to allow of determination of the original shape

[4] See Tate, *Seistan*, p. 163.

[5] *Ibid.*, pp. 167 sq.

[6] Cf. *Serindia*, ii. pp. 575, 589.

[7] Possibly it was here that Mr. Tate, *Seistan*, p. 195, thought to recognize 'a succession of low pillars constructed with baked brick' and now dissolved 'into dust of a dull orange colour', which he believed to be intended to mark an ancient trade route. I could find nothing to support this interpretation; but the line followed by the track is probably an old one.

and purpose. It measures about 50 feet by 35 at its foot. The sun-dried bricks are of the large size of 22–24″ × 12″ × 4″. At a distance of from 50 to 70 feet from its foot the remains can be traced of a massive enclosure of roughly oval shape, about 10 to 11 feet thick and built of bricks about 20″ × 12″ × 3″ in size. It has been almost effaced to the NW. and W., apparently through wind-erosion, but on the south it still stands to a height of over 13 feet.

Prehistoric occupation of mound.

The size of the bricks alone would suffice to prove that the attribution of great age to this ruin, as indicated by its popular designation, is justified. But what invests it with special interest is the evidence afforded by potsherds lying on the bare wind-eroded surface of the slopes that the mound was already occupied in prehistoric times. As shown by the specimens described in the List of section iii below, there were found among these pottery fragments numerous pieces of painted 'chalcolithic' ware (see Akh. 09, 11–13, 15–18), which, in view of abundant finds of the same kind on wind-eroded mounds farther south, must be ascribed to a period long antecedent to the earliest historical times in Sīstān. The fragments of stone vessels (Akh. 01–2, 19, 23) are characteristic associates of the same ceramic ware.

Early pottery remains.

There is every reason to assume that this conspicuous mound, rising well above the level of possible inundation from the Hāmūn and affording a distant view across the whole basin, was also occupied during historical times at a far earlier period than the ruins at and around Hauzdār. To these times we may confidently ascribe the numerous fragments also found there of superior pottery, plain, decorated, or glazed, closely resembling those common at Ghāgha-shahr and Shahristān, of which Akh. 03–7, 10, 14 (Pl. CXV) are specimens. Regularly 'ribbed' pieces, like Akh. 08, were also seen in plenty. The present elevation of the natural mound above the absolutely flat ground outside is about 12 feet. The difference between this and the height of 20 to 25 feet, which the mounds covered with prehistoric pottery debris at Shahr-i-Sōkhta and in the desert to the south usually attain, is easily accounted for by the fact that the ground around Hauzdār, having been irrigated for prolonged periods, must have been considerably raised through the accumulation of silt, due to the heavy mud carried by the Helmand at flood time.

Enclosure of *Pai-kash-i-Rustam*.

About 1½ miles farther to the south-west a curious enclosure is found, known as *Pai-kash-i-Rustam* and believed, as the name shows, to mark the footprint left by Rustam's famous horse Rakhsh. It consists, as seen in the sketch-plan, Pl. 57, of an irregularly shaped interior, about 100 yards across where widest, surrounded by a rampart, rising about 20 feet above the flat ground. This rampart varies from 40 to 80 feet in thickness and consists, as close inspection of the steep slope towards the interior showed, of the hard natural clay which underlies the gravel surface of the Dasht and is known locally as *sir* or *kim*. The interior space is quite bare and its floor covered with *shōr*. This is easily accounted for by the fact that in years of ample flood in the Helmand inundation from the Hāmūn reaches the outer foot of the rampart, as shown by the deposit of broken reeds left there. The only explanation of this strange enclosure that occurred to me is that an isolated clay terrace, such as are found in many places near the edges of the Dasht plateau, was by excavation of the interior converted into a natural circumvallation intended to offer shelter. But I realize that the width of the gap to the NE., fully 70 feet across, which seems to have served as entrance, is in this case difficult to account for. Could the enclosure possibly have been intended for use as a kind of corral or Dakhma?

Ruined rotunda outside enclosure.

The question thus raised was not solved by the small massively built rotunda found at a distance of only 6 yards or so from the foot of the rampart on the NE. (Fig. 491). Its wall, 6 feet thick, is built of strong bricks measuring 17–18″ × 8–9″ × 2½″. Its interior, 14½ feet in diameter, was once surmounted by a dome springing from a plinth at a height of about 11 feet above the present ground level outside. What remains of it shows that the vaulting was of the 'horizontal'

type constructed with overlapping courses of bricks. The entrance, opening from the south, was vaulted in the same manner. Its width, originally 4 feet, had been reduced by later masonry to 2′ 9″. Outside it a kind of porch, 2½ feet deep, has been cut into the thickness of the wall. The interior was encumbered to a height of about 4 feet with debris which moisture had compacted into a hard mass. At a level of about 3 feet above the present ground four loophole-like openings were traceable outside, at intervals of about 11 feet. Others are likely to have got blocked up by fallen masonry.

Sasanian coin found.

The ground near this rotunda was strewn with pottery fragments, mainly of the 'ribbed' type, such as were found in such plenty at Ghāgha-shahr. Besides plain ware of superior make, some small pieces of glazed undecorated pottery, in green, blue, and white, were also found, and also of coarse green glass and a bluish frit. These potsherds pointed clearly to the place having been occupied or visited during Sasanian times, and this indication received striking confirmation when a silver coin of Queen Boran (A. D. 630–1) (Pl. CXX, No. 20) was picked up under my eyes at a distance of about 3 feet from the northern foot of the rotunda. It is in excellent preservation.[8]

Site of *Shahr-i-sōkhta.*

It was to the NE. of Hauzdār, at a distance of about 7½ miles, that I first came upon ground thickly covered on the surface with debris of painted pottery and similar relics of a prehistoric civilization. As the plateau bearing them lies only some two miles off the high road and is a conspicuous object, it is well known by the name of *Shahr-i-sōkhta*, 'the burnt town'. Reserving a description of it for the next section, we may pass on to the ruins of Machī, which cover a considerable area extending from about 2 miles to the south-east of Hauzdār.

Deserted village of *Machī.*

The structural remains of Machī mark a site which, like Rāmrūd in the south of the deserted delta, is known to have been occupied by a large village at the beginning of the nineteenth century.[9] This statement is fully borne out by the appearance of most of the ruined buildings and also of the ground itself. When I first visited this in the evening, the slanting rays of the sun clearly showed up not merely the distributaries of the canal which once brought water to the fields here, but also the low earth embankments dividing them. In many places are still to be seen the low trunks of trees, mainly palms, which had been cut down on abandonment. It all strongly reminded me of the picture presented by the site of 'Old Domoko' on the desert edge of far-off Khotan.[10] The perfectly level surface covered with a smooth crust of hard mud showed an abundance of potsherds, mostly of very modern appearance. Wind-erosion did not seem to have appreciably affected as yet either ground or buildings. Nevertheless drift-sand, that corrosive agent of the wind, had gathered in sheltered places. These indications of the slight progress of decay have suggested to me that some of the conspicuous ruins of the place may not go back farther than the time when Malik Bahrām Khān's efforts had extended irrigation once more to this neighbourhood.

Among such structures may be noted the 'Chiginī' shown in Fig. 498, a typical example of the large and skilfully constructed windmills (*bād-i-āsiya*) also to be seen elsewhere among later Muhammadan ruins of Sīstān. The vaulting that carried the floor of the hall in which there were once two large wheels showed the respectable span of nearly 24 feet. Here, as in most other structures examined at Machī and Rāmrūd, the vaults and arches were of the regular Western type. Of a large fortified mansion some 300 yards to the SW. of this 'Chiginī', the sketch-plan, Pl. 58, shows the interesting disposition of the apartments, and Fig. 499 the fine 'Aiwān' or loggia, covered with three barrel vaults resting on high pointed arches. The whole structure, impressive by its

[8] Cf. Appendix *B*. The legend has been read by Mr. J. Allan.

[9] While my camp stood at Hauzdār, 'Nakhi', my intelligent Sīstān factotum from the Consular establishment, told me that he had met, about the year 1910, a very old man who stated that he was born at Rāmrūd. He claimed to be a centenarian.

[10] See *Ancient Khotan*, i. pp. 458 sq.



485. RUINED POST, R.R. XVII, SEEN FROM SOUTH-WEST FACE OF OUTER ENCLOSURE.



486. RUINS OF ĀTISH-GĀH SITE, SEEN FROM EAST.
Arrow marks remains of main structure.



487. QUARTERS, OUTSIDE FORTIFIED POST, R.R. XVII, AFTER EXCAVATION.



488. MAIN RUIN OF ĀTISH-GĀH SITE, SEEN FROM SOUTH.



489. RUINS ON ĀKHUR-I-RUSTAM MOUND NEAR HAUZDĀR, SEEN FROM SOUTH-WEST.



490. RUINED DWELLINGS WITHIN KUNDAR VILLAGE.



491. RUINED ROTUNDA OUTSIDE PAI-KASH-I-RUSTAM, SEEN FROM SOUTH-EAST.



492. RUINED POST, R.R. XII, SEEN FROM SOUTH.



493. ROOM CLEARED AT ENTRANCE OF RUINED POST, R.R. XX.

strength and good proportions, serves to illustrate the architectural skill which has survived in Sīstān till very recent times. Two or three other residences visited farther to the south show an interesting ground plan with a cruciform central hall, as illustrated by the sketch-plan in Pl. 58.

About 2 miles to the SSW. of the fortified mansion rises a mound, about 20 feet high and measuring about 80 yards by 30. This old Mesa is now covered with Muhammadan graves, but the abundance of potsherds found on it conclusively proves that it had previously served through successive ages as a site for habitations. The range covered by the pottery fragments from this mound extends from 'chalcolithic' painted or plain pottery, as shown by the specimens, Machi. 01–12, Pl. CXIII, to well-made plain red ware of the type associated with Ghāgha-shahr and Shahristān. Pieces of blue-glazed pottery were rare, and none were found with painted design under glaze. The fragment of a stone pot, 016, such as found elsewhere with 'chalcolithic' pottery in this area, also belongs to this earliest period of occupation. The remains of this occupation, so abundant at other points of the southern delta, will be discussed in the next section. The List in section iii also includes specimens of pottery and of glass fragments picked up at other points of the site. Of these many, if not most, probably belong to modern times. But it must be remembered that wind-erosion has probably, in places, brought to the surface also relics of earlier periods. This was obviously the case in the southern portion of the Machī area; for in the vicinity of the mound just mentioned the ground showed clear marks of wind-scouring, and rudimentary tamarisk-cones could be seen in course of formation, just as at sites but recently abandoned to the desert along the southern edge of the Taklamakān.

Mound with prehistoric pottery.

It was while proceeding from Machī towards the well and post of Girdi-chāh, on the trade route some 16 miles to the SW. from Hauzdār, that I first passed a belt of regular Yārdangs, or *kalward*, as they are called in Sīstān. They were only from 4 to 5 feet in height, but duly prepared me for the effects of wind-erosion as exhibited by the ruins of the southern group of Muhammadan sites. These are scattered over an area which extends for about 9 miles to the south-east of Girdī-chāh with a maximum width of about 3 miles. This area once received water from branching outlets of the Rūd-i-biyābān, still clearly recognizable, which trend to the west and south-west from where the Perso-Afghān boundary line crosses them between the pillars marked B.P. 17, 18 b on the map. The old canals fed by these outlets can still be followed in places.

Wind-erosion at work.

In the vicinity of Rāmrūd, the nearest of these sites and the best known, cultivation had, as already stated, been carried on as late as the beginning of the nineteenth century. But the examination of the ruined fort village to which that name is principally applied (Fig. 494), as well as of certain other remains, soon showed me that this late occupation meant merely a partial reclamation of land which had previously for a considerable period been abandoned to the desert. The circumvallation of the fort, as shown by the sketch-plan, Pl. 57, has been so badly breached—in places on the N. and NW. it is almost completely effaced—that exposure to the eroding force of wind-driven sand must reasonably be supposed to have extended here over more than one century. The same impression is conveyed by the appearance of the ground around the walls, which, as the photograph in Fig. 503 shows, has been cut up into regular Yārdang trenches and ridges. I am hence inclined to believe that this fort, and probably also a smaller one about half a mile to the SE., were already ruins when water was again brought to this neighbourhood in Malik Bahrām Khān's time. On the other hand, a group of eight or nine domed tombs, some of good size, which stand on ground but very slightly eroded, about 1½ miles to the east of Rāmrūd fort, may perhaps date back only to that latest occupation. A stretch of perfectly flat ground covered with a crust of hard silt, which we passed within a mile or so of Rāmrūd fort to the SE., probably also marks land that was then under cultivation.

Site of *Rāmrūd*.

Ruined circumvallation of *Kalāt-i-gird*.

Proceeding beyond this in the same direction, we crossed a belt of low dunes, overrunning unmistakable Yārdangs up to 8 feet or so in height, before reaching the large ruined circumvallation known as *Kalāt-i-gird* at a distance of close on 3 miles from the fort of Rāmrūd. It takes its name, 'the round fort', appropriately from the shape of the enclosed area, which, as the sketch-plan, Pl. 57 shows, is almost circular. The main circumvallation has an inside diameter of a little over 160 yards, and consists of a wall, about 8 feet thick, strengthened by round bastions (Fig. 483). It appears to have been built of sun-dried bricks which, where examination was practicable, measured 13–14" × 14" × 5". This main wall has suffered greatly from wind-erosion and shows large breaches through both the NW. and SE. segments; in many other places the top has become serrated from the same cause.

Later fort within.

On the west a portion of the circumvallation has been walled off, obviously at a later date; for the walls here are far better preserved and the structures found within still rise from 10 to 12 feet in height. In the rest of the circumvallated area no structures whatever survive. Additional bastions had been inserted in the original circumvallation to strengthen it where it was used for the later fort. This was obviously adapted for a smaller settlement at a period when the site was reoccupied after prolonged abandonment. Burnt bricks, 12" × 12" × 2", used on the top of the wall and bastions of the inner fort, suggest later repairs. Later construction is indicated also by the bricks used for the quarters within. They measure approximately 11" × 6" × 2" and thus differ appreciably from those in the original circumvallation. Another proof of the far greater age of the latter is afforded by the condition of the open ground within it, which in some places has been scoured out by wind-driven sand to a depth of 15 feet below the original level. I noted that within the inner enclosure fragments of manifestly late glazed pottery were far more common than in the walled area outside.

Dating of occupation.

The seven small Muhammadan coins found here are, like six more picked up outside, much worn and corroded and still await identification. But on one of them the date of A. H. 692, corresponding to A. D. 1293–4, was read at the time, and another (Pl. CXX, Fig. 21) has been recognized by Mr. J. Allan as issued by Quṭb-ud-dīn, Shāh of Nīmrōz, i. e. Sīstān (1331–83 A. D.). Among the plain red pottery debris found in abundance within the main circumvallation and outside it, only very few showed the 'ribbing' characteristic of the type so common at pre-Muhammadan sites. By all these indications I am led to conclude that the ruins of Kalāt-i-gird belong to two distinct periods of occupation. The earlier may correspond, perhaps, to that of Zāhidān, closing approximately with the fourteenth century; of the later one it would not be safe to state more than that it must have been separated from the former by a considerable interval, but on the other hand cannot be as recent as that of the last settlements at Machī and Rāmrūd.

Ruins outside *Kalāt-i-gird*.

Of ruined structures found close to the circumvallation of Kalāt-i-gird there are several which may date from the earlier period of Muhammadan occupation. One ruin a quarter of a mile to the NE., of which the walls decorated with rows of arched niches still rise to a height of about 20 feet, comprises a hall quite open to the south, measuring 36 feet by 24. The fact that the ground at the SE. corner of this hall has been lowered by wind-erosion 6 feet below the wall foundation indicates an early date. So also does the size of the bricks, 14" × 13" × 3", which agrees with that found in the outer circumvallation. The same size of bricks was also noted by me in the remains of another ruined hall, about 150 yards to the SW. of the former. It was of interest to observe the marked effects of wind-erosion on some Muhammadan tombs in the vicinity of the fort, obviously dating from the earlier period of its occupation. Around one of them, a structure originally domed (Fig. 504), situated about two furlongs to the NW., the soil has been undercut to a depth of 8 feet below the foundation, causing one of the four corners of the structure to fall and threatening

the rest with the same fate. The eroded clay terrace, a regular Yārdang of which the ruin occupies the northern end, extends for about 50 yards with a bearing from NNW. to SSE., and owes its preservation to the masonry of the raised graves which occupy its top. Exactly the same depth of erosion was observed at a series of Muhammadan tombs occupying small detached Yārdangs about 2 miles to the SE. (Fig. 477 a). If we assume that the earlier occupation of this area in Muhammadan times ceased towards the close of the fourteenth century, the rate of erosion here might be estimated at over 1½ feet per century, which somewhat exceeds even that observed at the Loulan site.[11]

Belt of wind-eroded ground.

But it will be well to bear in mind that the effect of erosion is likely to have varied in different portions of the tract according to the length of time during which it was left without water and hence without protecting vegetation. This will help to explain observations made while visiting other and probably later remains in the neighbourhood of Kalāt-i-gird. Proceeding to the south of Rāmrūd in order to visit certain ruins situated a little more than a mile to the west of Kalāt-i-gird, I passed through a belt of old Yārdangs lightly coated with *shōr* (Fig. 501) and thus curiously recalling the 'White Dragon Mounds' of the Lop Desert, though on a much smaller scale. They were from 8 to 10 feet in height and showed an approximate bearing from N. 325° W. to S. 175° E. in conformity with the 'Bād-i-sad-ō-bīst-rōz'. Their northern end or head was always steep, while the other end sloped down gently like a tail, the simile applied by the observant Chinese to those dreaded 'Dragon Mounds'.[12] The explanation of the peculiar white surface of these particular terraces was offered by an unmistakable flood-bed more than 100 yards wide, with abundant scrub near its banks, which was crossed a short distance beyond.

Remains of late structures.

The remains above referred to, which the map marks as *Gumbaz-i-shāhī* and to which my guides gave the name of *Kalāt-i-tāghaz*, comprise some eight or nine domed tombs scattered about an extensive Muhammadan graveyard. The ground showed here practically no trace of wind-erosion and the domed structures, though manifestly of some age, were in comparatively good preservation. They would appear from this to belong to a later period of occupation, just like the large mansions at Machī. That the ground near by must have been already desert when they were built is proved by their bricks. These, 10″ × 6″ × 2″ in size, were invariably found full of small twigs of tamarisk and similar scrub, such as still grows in plenty near the flood-bed. Ruins of tombs and a small farm traced at a distance of about 3 miles to the SE. of Kalāt-i-gird showed bricks of the same size, and in view of the scanty erosion, nowhere more than 4 feet or so, might likewise be safely attributed to that later phase of settlement in the southern delta.

## Section II.—REMAINS OF PREHISTORIC SETTLEMENTS

Mounds covered with pottery debris.

Among the remains of human occupation in past ages which aridity and wind-erosion combined have preserved for us on the very surface of the now dry southern delta of the Helmand, those of a prehistoric civilization perhaps offer the chief interest. They are represented by the broken pottery, stone implements, and similar hard debris that are found in remarkable abundance, thickly covering the summit and slopes of the small wind-eroded terraces or Mesas. These rise in great numbers like islands above the now arid plain between the vicinity of Hauzdār in the north and that of Kalāt-i-gird in the south. Judging from the large-scale survey, they are also very numerous farther to the SE., across the Afghān boundary. The layers of such debris mark the sites of prehistoric settlements. It is due to the protection afforded by these layers that the soil beneath, all alluvial clay, has retained the original level, while around them the level has been lowered in

[11] Cf. e. g. *Serindia*, i. pp. 371, 389.

[12] See above, i. p. 310.

places 20 feet or more, owing to the scouring effect of the sand driven by the north wind, which blows over Sīstān with more or less violence during four months of spring and summer.[1]

Varying rate of wind-erosion.

The difference in the height of these debris-strewn terraces, true 'witnesses' of a period preceding all historical records, is easily accounted for by the varying conditions which the neighbouring area has probably undergone since their original occupation. Wherever water from the Rūd-i-biyābān made its way from time to time, whether through inundation or by irrigation, vegetation for the time being afforded protection from the erosive force of the wind, and the lowering of the ground level was in consequence retarded. In the same way the height retained by those 'witnesses' of ancient occupation must also in a measure depend on the thickness of the culture strata which had accumulated by the time when that occupation ceased and wind-erosion began its work. For not until the layer of hard debris, winnowed out as it were by the wind from the embedding masses of loose earth and refuse, has attained a certain thickness and consistency can its protection become fully effective. It is obvious that this stage would be reached sooner at points where human occupation had been dense and continuous for a long time than at others where it may have been only intermittent and dependent on the seasonal movements of small semi-nomadic communities. Nor ought it be overlooked that reoccupation of such sites at much later periods would necessarily affect their level as well as the character of the relics to be found there. It is equally easy to realize that relics of the same early epoch may elsewhere also be brought by wind-erosion to lie exposed on the surface, side by side with objects of much later times, just as they are to be found at 'Tati' sites of the Taklamakān or in the wind-eroded wastes of the Lop Desert.

Remains of chalcolithic civilization.

Apart from the last two observations, it can safely be asserted that the vast majority of the abundant remains preserved for us on those Mesas of the southern Sīstān delta are remarkably uniform in character, and date from a single and evidently prolonged epoch of civilization. Having regard to the occurrence along with them, though rarely, of small bronze objects, and to the remarkably close agreement between the decorated pottery from these sites and certain ceramic ware found in other regions, as widely distant as Thessaly and Western China, this early Sīstān culture may justly be described as 'chalcolithic'. Before proceeding to a succinct analysis of characteristic types represented among the specimens of its relics, as described in the List below and illustrated in Pl. CXII–CXIV, I may record brief observations regarding the sites from which they were collected and the circumstances attending their discovery. Our notice of these sites may conveniently start from the southern area to which the account of later remains given in the preceding section has brought us. It was there that I was first able clearly to recognize the peculiar conditions explaining the survival of these relics.

Mound near Kalāt-i-gird.

A little over half a mile to the N. of Kalāt-i-gird a mound, about 80 yards long and 66 yards across, rises to a height of roughly 24 feet above the bare level ground. Its longitudinal axis lies in the direction of the prevailing wind, and it slopes down gently towards the SSE. An identical observation was made at the other mounds visited, and its explanation is the same as that which applies to the bearing of the 'tail' invariably shown by the Mesas of the Lop basin.[1a] The whole of the flat top of the mound and most of its slopes are thickly covered with potsherds of the chalcolithic type, plain, incised, or painted. A complete search for them might take days or weeks, and their removal *en masse* would fill many cart-loads. Among the numerous specimens of this

[1] Sir Henry McMahon was the first to recognize the true character and origin of these wind-eroded terraces and to call attention to the archaeological interest of the relics to be found on them; cf. 'Recent Survey and Exploration in Seistan', *Geogr. Journal*, 1906, xxviii. pp. 226 sq. He assumes palaeolithic origin for the 'black pottery and bits of black stone' that he notes as covering 'the rounded mounds'. The terraces I was able to examine looked, indeed, dark from a distance. But I did not find any pottery which can be called black.

[1a] See above, e. g., i. pp. 226, 263, 310.

ware, marked K.G. in the List, the piece K.G. 07.a showing a well-drawn goat's head deserves mention. The dozen fragments of wheel-turned alabaster vessels (K.G. 07, 141, &c.) and worked stones (0116–18) were also collected here, among them a well-finished arrow-head (0206) picked up by myself. Among the few fragments of bronze also found here, 0295 (Pl. CXVI) appears to be a knife tip. That the mound was not regularly occupied at later times was shown by the great rarity of glazed potsherds, of which I here noticed only very few undecorated pieces. On the other hand the wind-eroded area within and around Kalāt-i-gird, where the many specimens of glazed pottery, glass fragments, &c., were collected, yielded no remains whatever of the chalcolithic culture.

Mound R.R. i.

It was on proceeding to the NE. of Rāmrūd, into a region that had known no cultivation during recent times and had probably, in the earlier Muhammadan period, been occupied only at detached points, that almost every mound rising above the desert plain was found to carry relics of prehistoric life. The first examined, R.R. i, rising some 20 feet in the midst of a belt of well-defined Yārdangs some 3 miles from Rāmrūd, bears indeed a small decayed structure which, judging from its name (Langar-i-Hājī) and masonry, may have served as a roadside post in Muhammadan times. But by far the greater part of the potsherds strewing the top of the mound, some 120 yards long, were of plain or painted chalcolithic ware, while stone implements and fragments of stone jars were comparatively numerous (see the arrow-heads, R.R. i. 043, 46–7) (Pl. CXII). Later occupation is attested by 'ribbed' pieces, like 05, 33, 40, and a few fragments of glazed pottery and glass.

Worked stones, &c., from R.R. ii, iii.

The whole summit, about 140 yards by 100, of mound R.R. ii, about a mile farther on, is thickly covered with pottery debris, all of chalcolithic make, and slags from kilns. The specimens of stone brought away include two imperfectly worked implements (R.R. ii. 030–1), the fragment of a stone jar, 028, and a stone bead, 032. Nearly 3 miles beyond lies a small but conspicuous mound, R.R. iii, about 100 yards long and as much across, covered with a thick layer of potsherds, both plain and painted. Among the specimens taken from here the complete jars R.R. iii. 013, 16 (Pl. CXIV), and the neck of a vessel, R.R. iii. 010 (Pl. CXIV), decorated with the well-drawn head of an Ibex, deserved notice. Among the pieces of worked stone, 021–30, is a broken blade of jasper, which, as Mr. Reginald Smith points out, with its 'battered' back and the used edge opposite shows the closest resemblance to the blade from the Lop Desert illustrated in Fig. 25 in Mr. R. A. Smith's paper on the finds of my second expedition.[1] The resemblance is of quasi-chronological interest, as this form is one of which the first examples belong to the Madeleine cave period.

Relics from ground towards *Tāsuki* well.

A number of isolated mounds, no doubt of similar origin to those so far described, were sighted in the distance to the west of the route followed between R.R. i and R.R. iii. They were not visited by myself. But there is every reason to believe that the miscellaneous small objects, brought to me by the men who carried water from the Tāsuki well, about 5 miles SW. of R.R. iii, to my camp while it stood at the ruin R.R. v, were picked up on these mounds. These objects, marked R.R. in the List, consist mainly of chalcolithic pottery, and of worked stones and bronze fragments such as are ordinarily associated with it. That there are among them pieces of glazed pottery, glass, and paste is not surprising, since lines of old canals, traceable across this tract and shown on the map, indicate at least partial occupation of it during later times.

Ruins of *Burj-i-chākar*.

We crossed one of these canals, a small and obviously late one intended to carry water towards Kundar and Hauzdār, as we proceeded from R.R. iii to the ENE. My attention had been attracted there by a massive ruin rising on a stretch of 'Dasht' and a little over 2 miles distant. This ruin, R.R. iv, known as *Burj-i-chākar* (Figs. 480, 481), proved the first to be discovered of

[1] See R. A. Smith, 'The Stone Age in Chinese Turkestan', *Man*, 1911, No. 52.

a whole series of ancient watch-stations constituting a Limes-like line drawn across the southern delta. Leaving a full account of it for section iv, I may at once explain that it was largely the search for the remains of this Limes which led to my visiting other points of prehistoric occupation in this area. The ruined post R.R. IV stands on a low gravel-covered plateau, which shows practically no wind-erosion on its surface nor evidence of prehistoric occupation.

Finds at ruin R. R. V.

The surface of the ground showed much the same conditions at R.R. V (Fig. 479), a comparatively well preserved ruin of the Limes, about 3 miles to the NNE. Here early occupation was indicated by pottery debris of the chalcolithic type, which strewed the ground to the W. and N. of the ruined post, and significantly enough fragments of the same were found embedded in the bricks. The arrow-heads of jasper and chert, R.R. V. 09–10 (Pl. CXII), as well as the rim and side of a stone bowl, 06, are relics of the prehistoric settlement. But the piece of green-glazed pottery, 03, and the miscellaneous fragments of glass and paste named in the List obviously date from the time when the post was tenanted.

Prehistoric remains at mounds R.R. VI, VII.

Proceeding ESE. from our camp at R.R. V for a mile and a half over the pebble-strewn plain, we reached the conspicuous mound R.R. VI. Here fragments of prehistoric pottery are abundant. Among them were found the stone arrow-heads R.R. VI. 01, 13–17 (Pl. CXII), and pieces of lathe-turned alabaster vessels, 08–12. R.R. VII, about 2 miles farther in the same direction, is a typical Mesa (Fig. 500), rising with steep slopes to a height of about 25 feet above the gravelly plain. Here again the level ground around the foot of the mound was found thickly covered with prehistoric pottery, plain, painted, or incised, as shown by the specimens Pl. CXIII, CXV. Stone arrow-heads, R.R. VII. 024–6, are shown in Pl. CXII.

Chalcolithic remains at R.R. VIII–XII.

Turning thence to the SW., I found within less than a mile a small cluster of Mesas, R.R. VIII–X, all three about 20 feet in height, and plentifully strewn with remains of chalcolithic culture, in the shape of potsherds, plain or painted, as shown by the specimens in Pl. CXIII. Another mound, R.R. XI, a mile farther on, yielded, besides stone arrow-heads (R.R. XI. 015–16, Pl. CXII) and fragments of alabaster jars or bowls, the bronze seal in relievo, R.R. XI. 014 (Pl. CXVI), with an interesting ornamental device. Continuing for 1½ miles in the same direction, I came upon the remains of a fortified post, R.R. XII (Fig. 492), and recognized in it a replica, badly decayed, of the ruin R.R. IV. Fragments of prehistoric pottery strewing the ground close by and also embedded in the bricks of the ruin clearly showed that this fort had been built on the site of a far older chalcolithic settlement. To this belonged also the pieces of alabaster vessels picked up here; while the iron knife, R.R. XII. 037, Pl. CXVI, manifestly dates from the later occupation of the spot.

Ruined watch-posts on mounds.

On visiting the ruin next sighted, R.R. XII. a, that of a post somewhat smaller but built on a similar plan about a mile to SSE., I found that it, too, rose on a mound bearing relics of chalcolithic age. Finding the same conditions repeated in the ruined watch-posts which I subsequently examined while tracing the border line to the NW. of R.R. IV, I soon recognized the reason for the significant association with these ruins of relics of a civilization far more ancient. The mounds which the debris deposits of that early occupation had protected from wind-erosion already rose well above the surrounding country at the time when this defensive line was built across the southern delta. They thus naturally offered themselves as the most suitable positions for the chain of fortified stations designed to protect the cultivated area to the north against nomadic raids; for they had the advantage of commanding a wider outlook.

Mounds R.R. XVII–XIX occupied by posts.

This was certainly the case at the site of R.R. XVII, about 1½ miles to the SSW. of R.R. V, where a small castrum with a central fort (Fig. 485; Pl. 59) was located. Here prehistoric painted pottery and fragments of alabaster cups were plentiful outside the enclosure, while within it the potsherds were mainly coarser plain ware. The ruined watch-station R.R. XVI, about 1½ miles from R.R.

xvii, to the NW., and the next, R.R. xviii, which continues the protective border line in the same direction, as seen on the map, both occupy the summit of mounds rising well above the level plain and showing marks of prehistoric occupation. It deserves to be noted that the triangular bronze arrow-head R.R. xviii. 01 (Pl. CXVI) was found among the broken masonry of the small post and must hence be ascribed to the period when the latter with the rest of the border line was garrisoned. The ruined station R.R. xix, about 3 miles from R.R. xviii, was the last I succeeded in tracing at the north-western extremity of the line. Its remains, too, rise on a mound, but as the vicinity of the Hāmūn here causes the slopes to be affected by salt efflorescence, but little pottery debris could be found. It deserves to be mentioned that none of the mounds or plateaus here carrying ruins of watch-stations rise quite as high above the plain as those previously described, R.R. v–xi, to the S.E. of R.R. v. I am inclined to explain this difference by the fact that the ground near the former generally shows a cover of light gravel, which had evidently retarded wind-erosion as compared with the bare clay surface farther north. It is evidently due to the same protective covering of gravel on the mounds themselves that the ruins which occupy them have not suffered more decay. In spite of their considerable antiquity, as indicated by the evidence discussed below,[3] the undercutting of the exposed masonry through wind-erosion amounts nowhere to more than 4 feet, and at most points is much less.[4]

Different heights of mounds.

Along that portion of the ancient border line which was traced running to the south from R.R. xii. a, prehistoric relics proved distinctly less abundant. The explanation may possibly lie in the fact that the line here crosses a network of old outlets of the Rūd-i-biyābān, which, by their deltaic shifts and inundations, perhaps made occupation more difficult for the people of the chalcolithic period. At the ruined post R.R. xiii fragments of painted pottery and stone vessels were still to be found. But the sites occupied by the stations marked R.R. xiv, xx, xxi, lying on the banks of old river branches, showed no such relics. About ½ mile to the SE. of R.R. xxi, however, abundant slags with early pottery debris lying on a gravel ridge marked a kiln. When subsequently I succeeded in picking up again a line of small ruined posts, R.R. xxii–xxv, running to the ESE. on the Afghān side of the boundary, no objects were found during our hasty search which could definitely be assigned to chalcolithic times.

Prehistoric relics rare near Rūd-i-biyābān.

There still remain to be mentioned two localities visited by me, both to the north of the border line, where chalcolithic settlements are definitely proved. About 1½ miles to the NW. of R.R. v a low mound, R.R. xv, bearing a small ruined structure on its summit, attracted attention. On examination the ruin proved to be of late Muhammadan times, probably representing the remains of a rest-house or the like. But the ground on which it stands is thickly strewn with pottery fragments. Most of these were of the plain unglazed chalcolithic type; of the worked stones usually associated with this, a brief search of the surface sufficed to secure quite a representative little collection (R.R. xv. 01–22, 26, 28, 30–1, Pl. CXII). It is noteworthy that this includes, besides some well-worked arrow-heads of jasper and chert of neolithic type (03, 8, 26, 28), some very rudely chipped points and a small ribbed 'knife-blade', 01 (Pl. CXII), exactly of the same type as those found in great numbers on wind-eroded ground in the Lop Desert.[5] Such 'blades' were known in the palaeolithic period, but apparently survived also into neolithic times.[6] Yet side by side with relics of such antiquity and on the same surface level lay pieces of glazed pottery of modern appearance, such as the specimens with Chinese pattern, R.R. xv. 024–5. It would puzzle the

Mixture of potsherds at R. R. xv.

[3] See below, ii. p. 978.

[4] For an exactly corresponding observation made at the ruined watch-stations of the Han Limes on the gravel-covered plateaus of the desert west of Tunhuang, cf. *Serindia*, ii. pp. 572, 661 sq.

[5] Cf. *Serindia*, i. p. 357; iv. Pl. XXX; above, i. pp. 184, 206, Pl. XXII.

[6] See Mr. R. A. Smith, *Man*, 1911, No. 52, p. 82.

archaeologist of many centuries hence who should come upon this 'culture stratum' covered up by alluvium, if the Helmand were to shift its bed for good to this part of its present desert delta!

Site of *Shahr-i-sōkhta.* The other site of prehistoric occupation, and that an important one, lies far away, near the northern extremity of the ancient delta. To the NE. of Hauzdār the steeply scarped edge of the gravel-covered plateau of the 'Dasht' curves round a large bay liable to inundation from the Hāmūn. Where the south-western end of this ancient lake shore breaks up into spits and detached island-like Mesas, there extends along the top of one of the former the debris-covered area called *Shahr-i-sōkhta*, 'the burnt town'. Its direct distance from Hauzdār is about 7 miles, and as it lies quite close to the line which the caravan route to the south follows during the annual flood season of the Hāmūn, the locality is well known to wayfarers. The site of Shahr-i-sōkhta stretches for about 800 yards from NE. to SW. with a maximum width of about half this distance. The plateau tongue occupied by the site rises from about 35 to 40 feet above the plain of bare clay to the south which marks a former extension of the Hāmūn. Past the southern foot of the plateau tongue there sweeps a well-marked depression suggesting a bed which a branch of the Rūd-i-biyābān might have followed at some earlier period. A narrower branch, about 150 to 200 yards across, branches off from this depression near the head of the plateau tongue and turning to the NW. divides it from the wide expanse of the Dasht. The whole of the debris-strewn area on the top is furrowed by small Nullahs, caused by the action of drainage. But the sides of these, as well as the outside slopes to the very foot of the small plateau, are everywhere strewn with a profusion of potsherds. There is thus reason to believe that the debris-strewn area on the top must have formerly been even greater than it is now. Even in its present extent it indicates an ancient settlement much larger than any of the prehistoric sites previously described, and one which, in spite of the total absence of structural remains, may well deserve the designation of 'town' as implied by the local name of Shahr-i-sōkhta.

Masses of pottery debris. The whole of the pottery debris, enough to fill many railway trucks, consists of fragments, both plain and painted, of unglazed chalcolithic ware, as shown by the specimens described in the List. Fragments of stone cups and bowls, mainly of alabaster, all apparently lathe-turned, were also to be found,[84] as well as stone beads. A broken lignite seal, S.S. 089, shows an incised kind of key-pattern. S.S. 055, 091 are specimens of small bronze fragments. In the course of my prolonged inspection I failed to find a single piece of glazed pottery of any kind, conclusive evidence, I think, that the site was not occupied again after its abandonment in chalcolithic times. The probing of the ground in half a dozen places was attended by some instructive observations. Underneath the surface layer of pottery debris and fine gravel there was always found a soft stratum of loose disintegrated clay. This soil was often of a reddish colour as if it had been exposed to fire, which accounts for the name *Shahr-i-sōkhta*, 'the burnt town'. Bone fragments seemed to be frequently mixed with this soil, and in places I noticed what appeared to be the smell of decayed animal or vegetable matter. At a depth varying from 12 to 18 inches we came upon the very hard clay or *sir*, which seems to underlie the 'Dasht' everywhere to the south of the Helmand.

Prolonged prehistoric occupation. The most probable explanation that occurred to me of the conditions here observed was that human occupation prolonged for a very long period had caused the top of this island-like plateau to be covered with thick 'culture strata', consisting largely of decomposed mud walls or sun-dried brickwork, kitchen middens, and other refuse. The fine sand, i. e. the particles of alluvial or eroded soil that the north wind blows across Sīstān, being caught on occupied ground loess-fashion, may have added its quota to these ingredients. Wind-erosion combined with deflation has been at work

[84] Specimens of such fragments of stone jars and bowls are contained in the collection. Entries of them made in Mr. Andrews' List are not accessible at present for insertion.

on the site ever since its abandonment, gradually breaking up and carrying off all softer materials. In time the potsherds and other hard fragments, as well as the gravel contained in bricks and mud walls, would sink lower and lower as the loose earth originally embedding them was blown away, and would at last come to lie densely on the surface. Once this stage was attained, the protective crust formed by hard deposits from different 'culture' layers would prevent further wind-erosion or at least greatly retard it. It is obvious that a process such as the conditions described clearly indicate presupposes a very prolonged occupation of the ground. Recognition of this must also warn us that the pottery remains now found side by side on the surface at this and the other prehistoric sites are likely to be the products of a ceramic industry extending through centuries. This conclusion again, combined with the indications furnished by individual small finds, helps us to realize both the long duration and the comparatively high development of the chalcolithic civilization attested by these remains of the desert delta.

Interest of pottery from chalcolithic sites.

It is obvious that at the prehistoric sites surveyed above indications as to the people who once lived there and the approximate period of their occupation can be hoped for only from the small relics that have survived the destructive force of wind-erosion. Among these relics the fragments of pottery are by far the most numerous and instructive. A careful analysis of the materials, forms, and decorative patterns represented among them will be found in the first part of the general note prepared by Mr. Andrews on the pottery from Sīstān sites and prefixed to the Descriptive List in the next section. In a preliminary paper by Mr. Andrews discussing and illustrating the painted pottery from these prehistoric sites [7] due attention has already been called to the particular interest which attaches to it on account of its unmistakable affinity to the ceramic products of a chalcolithic culture brought to light by recent discoveries in widely distant parts of Europe and Asia. This resemblance is emphasized also by Dr. W. Percival Yetts in a short but stimulating notice published in connexion with the former paper and dealing with the important discoveries made by Dr. J. G. Anderson of extensive remains of chalcolithic culture in Ho-nan and Kan-su.[8] The remarkably wide spread of painted pottery with designs closely resembling those to be found on our Sīstān fragments is brought out in the brief but pregnant remarks which Mr. Hobson has devoted to the latter in his Appendix *D*. Reference to the very instructive monograph of Dr. T. J. Arne, which deals with the painted pottery among Dr. Anderson's finds in Ho-nan, and to Dr. Anderson's own 'Preliminary Report' on his discoveries in Kan-su, will best illustrate the extraordinary range covered by the known chain of finds. This now stretches from central China through Balūchistān, Persia, Mesopotamia, and other parts of the Near East to southern Russia, Transylvania, and Thessaly.[9]

Sīstān linking areas of chalcolithic civilization.

It would not come within my range to discuss the detailed points of contact which our Sīstān painted pottery presents with similar ware from far-off regions of Eurasia. Nor could I discuss here their general bearing on the interesting problems raised as to the origin, spread, and chronological limits of this chalcolithic civilization, even if the extensive literature relating to all those discoveries were at present within my reach. But I may well call attention to geographical considerations that invest our Sīstān finds with special interest, as linking several areas of the same or closely allied prehistoric culture which are otherwise far separated from each other. I refer

[7] See 'Painted Neolithic Pottery in Sīstān, discovered by Sir Aurel Stein. By Fred H. Andrews', *Burlington Magazine*, 1925, pp. 304 sqq.

[8] See 'Painted Neolithic Pottery in China, by W. Percival Yetts', *ibid.*, pp. 308 sqq.

[9] Cf. 'Painted Stone Age Pottery from the Province of Honan, China, by T. J. Arne', in *Palaeontologia Sinica*, Series D, vol. i, fasc. 2, Peking, 1925; and 'Preliminary Report on Archaeological Research in Kansu, by J. G. Anderson', *Memoirs of the Geological Survey of China*, Series A, No. 5, Peking, 1925.

Both papers supply useful information on the scattered literature dealing with finds in the Near East and Europe.

to the position of Sīstān between Susa in the west, Anau in the north-west, and the sites of Balūchistān and the lower Indus valley in the south-east—all localities which have yielded up remains of a closely allied prehistoric civilization.

Similar cultures in Transcaspia and Sind.

We do not know whether it was as a result of migration of races, conquest, or peaceful intercourse that the sites of Sind (Mohenjo-daro), the southern Panjāb (Harappa), and Balūchistān (Nal) now reveal the existence of a culture strikingly akin in various aspects, on the one hand to that of pre-Sumerian sites of Mesopotamia and Susa, and on the other to that of the earlier strata at Transcaspian Anau. But it is certain that the routes indicated by nature and most likely to have been followed by those movements pass through Sīstān. Reference to the map will show that the present Helmand delta lies approximately half-way between Anau and Mohenjo-daro, the direct distance measured from Nasratābād being a little over 500 miles to the former and a few miles less to the latter site. The resemblance of the Sīstān prehistoric pottery in forms, technique, and painted ornamentation to that brought to light by the Pumpelly expedition from the older strata of the Kurghāns of Anau,[19] is particularly close, as has been fully recognized by Mr. Andrews. The evidence which the association with it of stone implements and fragments of bronze affords at both places is similarly concordant in general. But it must be borne in mind that at the Sīstān sites it is impossible to determine stratigraphic succession for any class of finds.

Relations to early remains of Sind and Balūchistān.

The close relations which geographical conditions have created and maintained to the present day between Sīstān and what are now the territories of Sind and British Balūchistān must lead us to expect an equal, if not even greater, degree of affinity between the chalcolithic culture indicated by the relics of the southern Helmand delta and that which the excavations now proceeding at the ruined sites of Mohenjo-daro and Harappa are revealing. Publication of the surprising results which these have already yielded has not as yet proceeded far enough to permit here more than a general reference. But it can already be safely asserted that the resemblance in respect of the painted ceramic wares is very great, and particularly as regards the older layers reached by the spade in the Indus valley. There Sir John Marshall and his helpers from the Indian Archaeological Survey are systematically excavating extensive structural remains left by a civilization which through its inscribed seals and other relics can now definitely be co-ordinated with that which in Mesopotamia preceded the earliest Sumerian period. It is on the results of these explorations on the Indian side that we may at present base the main hope of likewise determining some chronological limits for the prehistoric remains of Sīstān.

[19] For a detailed account of the archaeological excavations at Anau, by Dr. H. Schmidt, with excellent illustrations, cf. Pumpelly, *Explorations in Turkestan*, 'Prehistoric Civilizations of Anau', i. Chap. VI–IX; for illustrations see particularly Pl. 9–35.

# Section III.—LIST OF OBJECTS FOUND AT SITES OF THE SOUTHERN HELMAND DELTA

## GENERAL NOTE ON SPECIMENS OF POTTERY, PREHISTORIC AND LATER, FROM SITES OF SĪSTĀN AND NEIGHBOURING PARTS

BY

F. H. ANDREWS, O.B.E.

### Prehistoric Pottery.

The pottery fragments found at sites of Sīstān and neighbouring parts of Khorāsān may be divided into two main sections: prehistoric and later. The prehistoric fragments may be conveniently grouped into three classes determined by the material of the body: buff, red, and grey. Each class shows varieties in tone, due mainly to irregular firing, as follows: I. Buff: Warm pale pinkish (K.G. 0131, Pl. CXIII); dark pinkish (R.R. viii. 011, Pl. CXIII); light greenish (R.R. iii. 05, Pl. CXIII); dark greenish (K.G. 09, Pl. CXIV); nearly black. II. Red: Pale terra-cotta (Machi. 010–11, Pl. CXIII); darker terra-cotta (S.S. 0119, Pl. CXIII; S.S. 02, Pl. CXIV); grey with red surface; dark grey. III. Grey: dark putty colour (K.G. 039; R.R. iii. 018; S.S. 0107, Pl. CXIII); dark dove (S.S. 03, 74, Pl. CXIII); nearly black (R.R. xvii. 08, Pl. CXIII).

Most of the pottery is painted, and that which is not has in some cases probably lost it through weathering. The majority of the painting is in black of varying degrees of density, and generally the paint has a slight glaze. In a few specimens the pattern is in brown or brown-black. The patterns are mostly geometrical, but a few have a freer character. The following is a general classification of the ornamental motifs:

A. *Straight Lines.* i. Simple; horizontal, as for encircling rings used to cover lip and to form the upper and lower boundaries of zones (K.G. 011, 39, 55, 58, 135; Machi. 010–11, 5; Md. (R.R.) ii. 07, 13, 18, 40; iii. 04; iii. 03, 5, 11, 18; viii. 011; ix. 02; xvii. 01, 5, 8; S.S. 01, 3, 15, 24, 74, 107, Pl. CXIII; K.G. 01, 8–10, 127, 137; Md. (R.R.) ii. 02, 21; iii. 01; iii. 010, 13; S.S. 02, 5, 101, 105, Pl. CXIV). Upright, as used in dividing zones into panels (R.R. xvii. 08; S.S. 04, 51, Pl. CXIII; K.G. 08; Md. iii. 01; S.S. 0101, Pl. CXIV), and used in groups for the 'triglyph' motif (R.R. iii. 011; xvii. 01, Pl. CXIII).

ii. Zigzag or chevron used horizontally (K.G. 039; R.R. ix. 01; S.S. 0119, Pl. CXIII; K.G. 0127, R.R. iii. 013; S.S. 02, 66, Pl. CXIV), vertically (R.R. xiii. 018; S.S. 050, 51, 85, Pl. CXIII; Md. (R.R.) ii. 021; R.R. iii. 010; S.S. 014, Pl. CXIV) and rarely, obliquely (K.G. 0132; Md. (R.R.) ii. 07; R.R. viii. 011; S.S. 01, 15, 26, Pl. CXIII; K.G. 09, Pl. CXIV); generally in groups.

iii. Triangle, used in horizontal series forming zones, when the base is formed by one of the boundary lines (R.R. xvii. 08; S.S. 03, 74, 119, Pl. CXIII), or tilted obliquely when the base extends from one boundary line to the other and the apex falls between (Md. (R.R.) i. 011; iii. 018, Pl. CXIII).

iv. Lozenge, square, and rectangle (K.G. 0131; Md. ii. 03, 8; R.R. iii. 03; xviii. 04; S.S. 09, 148, Pl. CXIII; Md. (R.R.) ii. 021; S.S. 06, Pl. CXIV).

B. *Curved Lines.* i. Semicircles, arranged in zones, the diameter formed by the upper and lower boundary lines alternately (R.R. ix. 02; S.S. 024, Pl. CXIII; S.S. 07, Pl. CXIV).

ii. Narrow leaf, rather like a willow-leaf, always placed in chevron order, bases and tips alternately touching. Probably derived from interlacing reversed semicircles (R.R. iii. 05; ix. 02, Pl. CXIII).

iii. Broad leaf, a variation of above. The full leaf always used vertically; *singly* between boundary lines, with sometimes half leaves placed horizontally, the mid-rib coinciding with boundary lines, and *in pairs*, one against upper boundary and one against lower (Md. (R.R.) ii. 018; iii. 04, Pl. CXIII).

iv. Festoons. These are usually formed by pairs of lines which form quasi-crescent curves, sometimes looping downwards (K.G. 047; Md. (R.R.) ii. 013; R.R. xvii. 01, Pl. CXIII; K.G. 0137, Pl. CXIV), at others arching upwards (Md. (R.R.) ii. 040, Pl. CXIII). A kind of fringe of short lines springs from the outer side of one or both lines. In other examples the space between the lines is hatched.

v. *S*-shaped curves occur on a few fragments. The *S* may be turned to right or left, and is rather elongated. A band of zigzag runs across each loop, and in one example (R.R. viii. 012, Pl. CXIII) the space thus enclosed in each end is cross-hatched. This pattern is placed arbitrarily at any angle and apparently singly (K.G. 01, Pl. CXIV).

vi. Scrolls. Freely growing scrolls are rare, but one fragment shows a group of three bold vertical lines, with flattened scrolls right and left and with secondary scrolls growing out of these. At the junctions of scrolls are always two short projecting spines, like rootlets on an ivy stem (S.S. 04, Pl. CXIII). Another example shows a voluted scroll with fringe on upper side of outer curve (Md. (R.R.) ii. 02, Pl. CXIV). Two fragments have roughly drawn small scrolls suggesting a small plant, or grass (K.G. 058, Pl. CXIII; K.G. 010, Pl. CXIV).

vii. Meandering leaf. There is a very highly developed meandering leaf pattern which runs in regular curves round the body of a vessel, the mid-rib being raised in a keel-shaped ridge, and painted with a broad solid band of black. Serrated leaf edges are boldly painted in the hollows, and the ground

is hatched to bring the leaf away. The zone is bounded by similar keel-shaped raised bands (Machi. 010–1, Pl. CXIII).

There are variations in both A and B pattern which will be noted in detailing individual fragments.

C. *Animal forms.* These are restricted to three examples. One shows what seems meant for a snake, placed in vertical undulations on the side of a nearly straight-sided vessel (S.S. 05, Pl. CXIV). Another shows the head and neck of a goat in silhouette (K.G. 07. a). A third shows a bold drawing of an ibex (R.R. III. 010, Pl. CXIV). This last is of a different type from any of the others and is probably an importation.

The forms of vessel recognizable are:

Wide-mouthed bowl with flat base (K.G. 01. a, 120, Pl. CXIV).

Narrow-mouthed pot, 'echinus'-shaped with slightly everted lip and flat base (R.R. III. 013, Pl. CXIV).

Small jar with fig-shaped body narrow end downwards, cut off flat to form typical small base. Lip slightly everted (R.R. III. 016, Pl. CXIV).

Beaker with typical small base from which the sides rise in inverted conical form. This merges into a swelling curve to the widest part, then leans very slightly inward until near the mouth, where it leans slightly outward (Md. (R.R.) II. 037, Pl. CXIV).

Tubular jar with sides sloping gently inward as they rise, and slightly curving under to relatively broad base (Md. III. 01, Pl. CXIV).

Tall pear-shaped jar, broad end downward, flowing into a concave curve to typical narrow base. Upper end (broken away) shows beginning of an outward flow. The stem-like lower part is solid (Md. (R.R.) II. 027; S.S. 0121, Pl. CXIV).

Flat 'echinus'-shaped bowl with simple incurved wide mouth and short solid stem, carelessly and obliquely cut off to form base (K.G. 028–9, Pl. CXIV).

Of doubtful shapes a few pieces suggest probable forms, such as curved and straight-sided wide-mouthed bowls (R.R. VIII. 011; S.S. 01, 3, Pl. CXIII); jars with tall sloping sides and recurved lips (S.S. 05, Pl. CXIV); saucer-shaped dishes (S.S. 015, Pl. CXIII); globular jars with narrow mouth and recurved lip (K.G. 0131; Md. III. 04; R.R. XVII. 08, Pl. CXIII).

All the forms detailed above are found in Group I. The fragments of Group III seem to belong almost exclusively to the wide-mouthed bowl or saucer type of vessel, the only obvious exception being part of the side wall of a flattened globular pot (Md. III. 04, Pl. CXIII).

There are no indications in any group of handles, lugs, or spouts, nor are any fragments of such parts present. All the pottery seems to be wheel-made.

### Later Pottery.

Later pottery, that is, pottery which belongs to historic times, comprises fragments of both unglazed and glazed ware, with the following subdivisions:

*Unglazed*: Plain, ribbed, incised and ornamented in relief.

*Glazed*: Plain, incised, relief, painted. The character of the body material is very varied, ranging from a buff sandy clay to a fine quality stoneware approaching porcelain in texture. Most of the fragments are of various shades of red, some being quite fine. A rich red-burning clay is frequently wiped over the surface in a thin coat, and in a few examples there are evidences of attempts at burnishing.

In the unglazed class one of the most frequent treatments is to break up the surface into more or less regular horizontal ribbing and channelling (Gha. 02, 07–8; Shahr. 07, 045; B.-i-A. 01; K.G. 024, 223, Pl. CXV). This appears to have extended over the entire body, dying away on the shoulder where a band of ornament sometimes marks the junction of shoulder and neck (Shahr. 07, Pl. CXV). An occasional treatment is the burnishing of groups of thin annular lines to relieve an otherwise unbroken surface (Gha. 010 + 12, Pl. CXV).

Incised ornament includes a wide range of treatment. Patterns may be impressed by means of a stamp or built up by incisions of a simple unit, or drawn with a single or multiple-pointed tool. A characteristic stamp is the leaf pattern (Shahr. 02, 7, 30, Pl. CXV). The leaf is a single stamp which is repeated usually in a single row or in imbricated order (Shahr. 023, Pl. CXV). The character of leaf varies, being sometimes pointed and smooth-edged (Shahr. 030, Pl. CXV), or serrated with different forms of teeth. It is generally used with the ribbed treatment, to decorate the root of the neck of a vessel. A simple triangular point is effectively used to build up patterns by repetition (Shahr. 09, 14, Pl. CXV). A small ring punch is also used in the same way (Shahr. 033; A. 026; Akh. 014, Pl. CXV). In pottery of Muhammadan times elaborate arabesques are built up from units (K.G. 091, Pl. CXV) or are stamped complete from a single die.

Patterns incised with a single point are few and elementary, but sometimes evidence considerable judgement (Shahr. 014, 36; R.R. 01, Pl. CXV). The multiple-point tool and comb afford plenty of scope for rich effects without much effort. Zigzags, festoons, triglyphs, &c., are freely used, and several of the patterns recall the painted ornaments of the chalcolithic period (Shahr. 017, 37, 41; Gh. Ta. 04, 5; B.-i-A. 02, Pl. CXV).

Patterns in relief occur occasionally, and are usually raised fillets or bands variously moulded or incised (Shahr. 03, 8, 11, 32, 33, Pl. CXV). Sometimes a floral boss is used (Gh. Ta. 08, Pl. CXV).

The glazed pottery comprises the following varieties: turquoise glaze on coarse body with painted patterns in grey or black (B. 018; B.-i-A. 03, 5, 7, 23, Pl. CXVII; Muj. 01; Gha. ii. 01; Sal. 014; Surhdik. 02, 4; Pusht. 07; Machi. 086; K.G. 0144, 146, 249, 250, 260, 264, Pl. CXVIII). The glaze varies in richness of colour from very pale to a fine deep tone. It is generally flaking away from body. The painted patterns are largely composed of freely drawn spiral curves. A variation of this type has touches of cobalt blue added to the pattern (Khu. 044; B.-i-A. 08, 9, 25; B. 02, 14, Pl. CXVII; K.G. 083, 246, Pl. CXVIII).

Another variety is glazed white with arabesque patterns outlined with black, enriched with cobalt blue bands and washes of grey and sometimes copper green (K.G. 084, 86,

99, 153, 155, 241, 245, Pl. CXVIII). A third variety, also glazed white, has patterns in blue, of Chinese and Perso-Chinese type (Khu. 03, 4, 5, 6, 15, 16; Pusht. 02; Machi. 021, 27; K.G. 081, 88, 98, 154; R.R. 03, Pl. CXVIII). A fourth variety is of fine texture with good white glaze and naturalistic fern-like sprigs in brown and green without outline (Machi. 051, 52, Pl. CXVIII). A fifth variety shows a raised pattern in light tone on a celadon grey-green ground (Pusht. 08, Pl. CXVIII).

A sixth type differs from all the others. Nearly all the fragments of this type are from shallow dishes and show very bold arabesque patterns painted in bands of black, dark brown, pink, red, sage green, and yellow on white ground. Rings and dots are picked out in graffito on some of the coloured bands (A. 02–6, 8–11, 13–14, 17, 21–23+, Pl. CXVII). In one or two pieces the bright glaze is iridescent.

The fragments of wall tiles and tile mosaic from Shāh Rukh's Madrasah at Khargird (see above, ii. p. 899) form another class. In these tiles the body is always gritty and not heavily fired. Two examples show tile mosaic or inlay (Khar. 021, 25, Pl. CXVIII); others are painted in imitation of inlay (Khar. 02, Pl. CXVIII), while others again make no pretence to be anything but painted tiles (Khar. 01, 3, 19, 26, Pl. CXVIII).

## OBJECTS FOUND AT ĀKHUR-I-RUSTAM

**Akh. 01, 2, 19, 23. Frs. of stone vessels.** *01*, from lip and wall of alabaster bowl. 2″ × 1⅝″. *02*, from rim of straight-sided alabaster jar. 1 5/16″ × ⅝″. *019*, from lip of sloping sided jar. Lip flat on top and overhanging outwards. 1″ × ⅝″. *023*, from side of vessel. Dark grey. Two annular incised lines and incised cross-hatching below. ⅞″ × ½″.

**Akh. 03. Fr. of pottery bowl,** showing mouth flush with sides. 1¼″ below mouth, on outside, a raised annular rib, notched. 2⅝″ × 1½″.

**Akh. 04. Fr. of pottery,** from wall of vessel; light buff. Plain. 2⅜″ × 1⅝″.

**Akh. 05, 6. Frs. of pottery,** from shallow bowls. Red; unglazed. 05, seems to have had polished red slip. 3⅝″ × 1⅝″. 06, similar to 05 but thinner. 2¼″ × 1⅝″. Pl. CXV.

**Akh. 07. Fr. of pottery.** Pale red, glazed outside with very polished green-yellow glaze. 1¼″ × ⅞″.

**Akh. 08. Fr. of pottery.** Buff gritty body. Regularly ribbed inside. 2⅜″ × 2⅜″.

**Akh. 09, 11–13, 16. Frs. of pottery.** Buff, painted, 'chalcolithic'. Patterns in brown and brown-black. 09, shows curved lines and cross-hatching. 1½″ × 1⅛″. *011*, has annular lines and a series of parallel festoon or looping lines. 1⅝″ × 1⅛″. *012*, shows pair of annular lines and oblique wavy line. 2⅜″ × 1⅛″. *013*, shows zone bordered by two pairs of lines and three-line festoon as on 011. 1⅝″ × 1⅜″. *016*, shows annular lines and other strokes on inside surface. 1″ × ⅝″.

**Akh. 010. Fr. of pottery.** Red body with greenish-buff surfaces. No painting. 2½″ × 1⅜″. Pl. CXV.

**Akh. 014. Fr. of pottery.** Light buff, with small punched rings all over surface. 2⅝″ × 1⅜″. Pl. CXV.

**Akh. 015. Fr. of pottery,** red. Surface has pale pink slip and is painted inside with two curved lines and a parallel 'scrabbled' line. 1″ × 1″.

**Akh. 017–8. Frs. of pottery,** grey; painted. *017*, has red outer surface and four annular lines in black. 13/16″ × ⅞″. *018*, outer surface light grey. Painted with double-line zigzag, with 'ladder' hatching between lines. A triangle, hatched, in each hollow of zigzag. 1⅝″ × ⅞″.

**Akh. 020. Fr. of agate.** ⅝″ × ½″.

**Akh. 021. Fr. of iron bridle.** Length 1¼″. Pl. CXVI.

**Akh. 022. Shell bead,** tubular. ⅜″ × 3/16″.

## OBJECTS FOUND AT AND NEAR MACHĪ SITE

**Machi. 01, 3, 4. Frs. of pottery vessels;** 'chalcolithic'. *01*, fig-shaped, as R.R. iii. 016. Buff. No painting. H. 2″, diam. 2½″. *03*, rim painted with pair of annular lines outside, and a pair with undulating line between, inside. Surface burnished; rich red. 1⅝″ × 1½″. *04*, pale buff. Outside, painted in yellow-brown, shows zone of festoons formed by double lines and the spandrels between, hatched horizontally. 2½″ × 2½″.

**Machi. 05. Fr. of wall of globular vessel,** pale buff. Outside, painted in yellow-brown, shows a zone of intertwining meanders with the loops hatched. 2¾″ × 2¼″. Pl. CXIII.

**Machi. 06–8. Frs. of vessels.** *06*, pale buff. Painted in brown, outside, pair of annular lines; below, apex of triangle filled in solid. 1⅝″ × 1″. *07*, pale buff. Plain. 1½″ × 1¼″. *08*, green buff. Plain. 2″ × 1¼″.

**Machi. 09, 29, 38, 88. Frs. of glass bangles.**

**Machi. 010 + 11. Fr. of pottery vessel.** From wall of bulbous body. Two raised keel-shaped ribs run round greatest diameter; between them a wavy raised line forms very stylized leaf with serrated edges. Where serrations are drawn the background is hatched with vertical lines. All ribs and serrations in strong black lines over a dirty white slip. Hor. ch. 6″; vert. ch. 3⅝″. Pl. CXIII.

**Machi. 012–14, 25. Frs. of vessels.** Grey, fine. *025*, shows outside zone of linked (touching) squares. 1″ × ⅝″.

**Machi. 015, 28, 59, 60–63. Frs. of pottery vessels.** Wheel-made; pale buff and pale 'terra-cotta'. *015*, glazed rich blue inside. 2″ × 1¼″ × ⅜″. *028*, glazed yellow-brown all over. 1″ × ¾″ × ¼″. *059*, glazed pale sage-green both sides. Inside surface widely ribbed horizontally.

1⅞″×1″×⅛″. *060*, glazed rich sage-green inside. 1⅞″×1⅞″×3/16″. *061*, fine grey-green glaze on both sides. 1 3/16″×1¼″×3/16″. *062*, glazed inside only, pale grey mottled brown ('mildew'). Drilled for repair. 3″×1⅝″×¼″ to ⅛″. *063*, glazed outside only, mottled green and dark grey. 2″×1⅜″×⅛″.

**Machi. 016. Fr. of alabaster (?) pot.** Straight-sided; flat base. Diam. 1⅜″; H. 1⅜″.

**Machi. 019. Fr. of porcelain vessel,** white and translucent. Glazed fine white both sides. Outside, pattern in slightly incised lines, under glaze. 1½″×1¼″×⅛″.

**Machi. 020–3, 26–7, 43, 44, 46–50, 53, 54, 56, 61, 65, 66, 67, 70. Frs. of pottery vessels.** Hard, buff, gritty body. Glaze generally white. Pattern painted in blue, sometimes outlined black. General character Chinese or Perso-Chinese, floral and scroll. *021*, good pink-buff body, white glaze. Inside and outside floral pattern painted dark blue; all outlines are in fine black lines. 1⅝″×1¼″×¼″. Pl. CXVIII. *022*, pattern on outside conventional floral and bird (?) in blue line, with added washes. 2″×1¼″. *027*, upper surface painted with conventional (Chinese ?) landscape and bird (?). 1⅞″×1⅜″. Pl. CXVIII.

**Machi. 024. Fr. of shell-like object.** 1″×¾″.

**Machi. 030. Fr. of pottery vessel.** Hard, buff, gritty body. Glazed white inside, outside mottled cobalt blue. 1¼″×⅝″×¼″.

**Machi. 032–7, 82. Glass frs.** All greenish white. Gr. fr. 1¼″×1¼″.

**Machi. 041. Fr. of stone cup (?).** Bottom complete inside. Foot and sides broken away. H. 1⅛″, Diam. 1¼″.

**Machi. 042, 58, 68–9. Frs. of vessels,** glazed. Pale red, buff outside. 1 9/16″×1 3/16″. *058*, buff. Inside plain rich green glaze; outside green-buff glaze, abraded and dull. 1⅝″×1⅜″. *068*, buff. White glaze with pale blue pattern on both sides. 1″×3/16″. *069*, buff. White glaze with pattern on both sides in fine dark blue lines. 9/16″×5/16″.

**Machi. 045. Fr. of porcelain.** Glazed pure white. Part of floral pattern in cobalt on one side. ⅞″×1⅜″×⅛″.

**Machi. 048. Fr. of glazed pottery.** Glazed thin white. Floral pattern outside in grey-green; inside bright blue, outlined black. 1″×⅞″.

**Machi. 051–52. Frs. of pottery vessels.** Glazed white. *051*, painted outside with grass-like sprig, having light brown stems and sage-green leaves. 1¼″×1¼″×⅛″. *052*, similar ware; outside painted sprig in madder brown. 1 7/16″×⅝″×⅛″. Pl. CXVIII.

**Machi. 055. Fr. of pottery vessel.** Glazed white inside. Outside, rich cobalt blue with five-pointed leaves in lighter blue, painted in opaque enamel over blue ground. Only example of this treatment in collection. ⅞″×⅞″×⅛″.

**Machi. 057. Fr. of copper plate.** ⅞″×⅛″. Pl. CXVI.

**Machi. 062. Fr. of pottery bowl,** glazed; mottled pale turquoise inside and over top surface of lip. Chord 3″, H. 1⅜″. Wall of side ¼″.

**Machi. 080. Fr. from rim of pottery vessel.** Glazed both sides pale green-blue. Painted outside wavy band in black outline, filled in with cobalt. Inside a pair of annular lines in black. ⅝″×⅞″×⅛″.

**Machi. 086. Fr. of pottery dish.** Faded turquoise glaze. Within, solid, black, silhouette painting of leaves. 1⅞″×1″. Pl. CXVIII.

**Machi. 087. Fr. of vessel.** Fine grey; perhaps part of unusual foot. Ch. 1⅜″; H. ⅞″. Pl. CXIV.

**Machi. 089. Fr. of pottery vessel.** Glazed dirty white both sides, painted pale blue inside. A pair of annular lines with Sasanian (?) leaf pattern below and traces of zigzag (?) above. 2⅛″×1½″×⅛″.

**Machi. 090. Fr. of glass bead.** Deep blue or black, with scroll applied in white. Diam. ⅜″.

## OBJECTS FOUND AT AND NEAR KALÂT-I-GIRD SITE

**K.G. 01, 8. a, 30, 40–1, 44–6, 80, 121–2. Frs. of unglazed pottery.** Unpainted. *01*, pinkish-grey. Faint incised annular lines in pairs at unequal intervals on outside. H. 2⅜″; chord 3¼″; thickness ⅜″. *08. a*, similar to 01, but thinner and channelling much shallower. 1¼″×1⅜″. *030*, part of small cup; nearly half broken away. Diam. 2¼″; H. 1″. Remaining frs. plain red, some showing fine red slip more or less burnished. Gr. fr. (*08. a*) 2⅜″×2⅜″.

**K.G. 01. a. Large pottery bowl,** broken. Roughly made and distorted in drying and firing. Simple basin-shape with lip slightly out-turned. Lip painted brown-black. Inside, just below rim, a horizontal *S* ornament with scrabbled lines across limbs. 12″×6½″. Pl. CXIV.

**K.G. 02, 5, 6, 114, 156, 157, 224, 229, 243 Frs. of pottery,** unglazed, with incised patterns. *02*, greenish buff. Outside annular line with vertical lines at intervals falling from it. 3¼″×3″. *05*, greenish buff. Band of three channels and ribs and below a line. From last line are drawn three pairs of thin scratched lines, all at different angles. 2¼″×2⅜″. *06*, pale buff. Three narrow irregular annular channels. Above, the surface covered with a double-line trellis; below, top curves of combed meander. 1⅞″×2⅜″. Pl. CXV. *0114*, small fr. showing narrow annular band of close notches with faint plain line on each side. 1½″×1⅛″. *0156*, red, with deep red surface. Three deep narrow channels form annular band. 1⅝″×1⅜″. *0157*, buff. A faint attempt to make annular band of short vertical ribs. Hanging from this two diverging pairs of thin incised lines with two irreg. zigzag vertical lines between the pairs. 1½″×2¼″. *0224*, series of dents made with edge of square stick ornament upper side of lip. At base of short neck, side curves outwards in concave form and then drops down to form body. A row of gashes decorate the hollow at base of neck. Below, traces of meander. 2¼″×3¼″. *0229*, roughly scratched single line

meander. Red. 1⅝"×1⅜". Pl. CXV. *0243*, neck and mouth of bottle-shaped vessel. Neck decorated with meander of strung curves. At junction of mouth and neck is an annular groove. Side of mouth pushed out slightly in six places. Lip turned well out and worked flat on top. Handle rises from base of cup-like mouth, is attached almost up to lip and springs outwards to form ordinary loop (now broken away). Buff. Diam. 2⅝"; H. 3¼".

**K.G. 02. a, 208–10, 295, 297, 299. Frs. of bronze.** *02. a*, flat bezel of ring. Pl. CXVI. *0208*, ring, not joined. Both ends flattened. Pl. CXVI. *0209*, disc with scalloped edges; probably bezel of 0208. Pl. CXVI. *0210*, piece of moulded bronze. ⅝"×⁵⁄₁₆". *0295*, flat piece like knife tip. 1⅛"×⅝". Pl. CXVI. *0297*, small bead. ³⁄₁₆". *0299*, fr. of rod. ⅝"×⅛".

**K.G. 04, 22, 105, 149, 161, 220, 263, 278. Frs. of pottery.** Glazed with various greens, some with patterns in black. Gr. fr. (*0263*) 3⅛"×2".

**K.G. 07, 141, 230, 267, 268, 270–1. Frs. of alabaster vessels.** *0268*, shows thin out-turned lip and rapid downward thickening of wall. Gr. fr. (*0141*) 1⅝"×1⅝".

**K.G. 07. a. Fr. of pottery**, unglazed, painted in silhouette with head and neck of goat. 1⅜"×⅞".



**K.G. 08, 66, 73, 125, 129. Frs. of pottery vessels.** Unglazed. All painted with variations of square with 'fish-tail' outer angles. *08*, lip painted. Below, a broad zone bounded by two lines. Zone seems to be divided by groups of vertical lines into 'triglyphs' and 'metopes'. The 'metope' in this instance shows two diagonals dividing the space into four triangles. 1⅞"×1⅝". Pl. CXIV. *066*, shows part of square with greatly prolonged sides and the space between prolongation filled in solid black with open end fringed. This forms the characteristic 'fish-tail'. 2⅛"×1½".

**K.G. 09. Fr. of pottery vessel.** Painted with pair of thick annular lines, two groups of three zigzag lines running obliquely, one to R. and other to L. End of a fern-like line. 2⅝"×2⅛". Pl. CXIV.

**K.G. 010, 58, 132. Frs. of pottery**, unglazed, painted. *010*, edge of bowl slightly everted and rounded. Inside, two lines one within the other, each making two touching 'fish-scale' curves. Pl. CXIII. 2⅛"×2⅛". *058*, painted outside with annular line, and from line upward-springing curved lines suggesting tree. 1⅞"×1⅛". Pl. CXIII. *0132*, painted outside with a rough zigzag line above two strokes hanging from angular line. 2"×1⅝". Pl. CXIII.

**K.G. 010. a, 94, 109, 144, 146, 150, 152, 226, 244, 247, 248–50, 260, 262, 264, 277. Frs. of pottery.** Glazed copper green or turquoise, with scroll and floral patterns in black. Gr. fr. (*0260*) 5⅛"×2¼". Pl. CXVIII.

**K.G. 011, 135. Frs. of pottery vessels**, unglazed, painted. Pale red with buff surface. Painted outside with two pairs of thick annular lines, the space between pairs occupied by a band of disconnected zigzags, suggestive of flying birds. *011*, 2⅛"×1⅞". *0135*, 2⅝"×2⅛". Pl. CXIII.

**K.G. 012, 83, 87. Frs. of pottery bowls**, glazed, blue and white with floral scrolls in black. Gr. fr. (*087*) 3⅜"×1¾". *083*, Pl. CXVIII.

**K.G. 014, 38, 68, 136. Frs. of pottery**, unglazed, painted, with pattern of semi-lunes against a hatched ground. Gr. fr. *014*, part of mouth and shoulders. Mouth, trumpet-shaped with thin delicate lip painted black. At root of short neck a broad annular line and another on shoulder just below. Semi-lunes drawn in thick lines, their diameters coinciding with second annular line and the ends of adjacent arcs touching. Ch. of neck 2⅝"; H. 1⅓".

**K.G. 015, 44. Frs. from mouth of two bowls**, unglazed, painted. Lip black. *015*, outside an annular line with 'triglyph' lines running down, and in 'metope' the ends of three upward curved lines. Inside, part of a recumbent *S* curve with broad 'scrabbled' band obliquely across a loop of *S*. 1⅝"×1½". *044*, inside, a bold lozenge shape with 'scrabbled' band through its centre parallel with two sides. 1⅜"×1½".

**K.G. 016, 17, 43, 75, 76, 77, 133. Frs. of pottery.** Unglazed, painted with annular lines. Gr. fr. (*016*) 3⅜"×1⅝".

**K.G. 018, 32, 34, 51, 57, 59, 60, 65, 134. Frs. of pottery**, unglazed, painted. Greenish buff, excepting 0134, which is pinkish. All have 'willow-leaf' decoration. Gr. fr. (*057*) 3⅛"×2⅜".

**K.G. 020, 21, 56, 70, 78, 126, 128. Frs. of pottery.** Unglazed; grey, well washed. Painted with lines mostly annular. Gr. fr. (*056*) 2⅛"×1⅞".

**K.G. 023, 47, 62, 64, 137. Frs. of pottery.** Unglazed, painted with festoon patterns, some also with crescents. Gr. fr. (*047*) 3"×2". Pl. CXIII.

**K.G. 024, 223. Frs. of pottery vessels**: ribbed. *024*, blackened outside, deep red inside. Flat as though for lid. Channels widen as ribs narrow. 2⅛"×2⅜". Pl. CXV. *0223*, red. Ribbed outside with rounded unequal ribs. 2⅞"×2⅜". Pl. CXV.

**K.G. 025, 50, 130. Frs. of pottery**, unglazed, painted. All with multi-lined zigzags. Gr. fr. (*0130*) 2⅛"×1⅞".

**K.G. 026, 36, 49, 69–71. Frs. of pottery.** Unglazed, painted with zigzags and annular lines. *049*, *70–1*, show also 'scrabbled bands'. Gr. fr. (*069*) 2⅛"×1⅞".

**K.G. 028–9. Pottery trays**; unglazed, buff. Flattened echinus shape with flat foot showing potter's string mark. Inside shows spiral channel made by potter in turning. Mouth is painted round with brown-black from which are streaked rough rays towards sides. *028*, diam. 3"; H. 1⅜". *029*, diam. 2¼"; H. 1⅛". Pl. CXIV.

**K.G. 033. Fr. of pottery.** Unglazed, painted with black triangle 'fringed' on side. 2¼"×2⅛". Pl. CXIII.

**K.G. 035, 37, 52, 63, 115. Frs. of pottery.** Unglazed, painted with cross-hatched square. Gr. fr. (*063*) 2⅛″ × ⅞″.

**K.G. 039. Fr. of pottery bowl,** unglazed, painted. Lip black. Inside, pair of annular lines. Outside, steep zigzag line with a central annular line cutting through zigzags. Blurred lines form upper and lower borders. The whole appar. burnished after painting. 1⅝″ × 1⅜″. Pl. CXIII.

**K.G. 054. Fr. of pottery vessel.** Unglazed, painted with annular lines and two zigzag lines. 1$\frac{5}{16}$″ × 1¼″.

**K.G. 055. Fr. of pottery bowl,** unglazed, painted. Lip black. Outside between pairs of lines band of hatched lozenge shapes. Outer surface shows mark of scraper or burnisher. 1⅝″ × 2″. Pl. CXIII.

**K.G. 067, 72. Frs. of pottery pot.** Unglazed, painted with zone of small hatched triangles between. Pairs of annular lines. *067*, 1½″ × 1⅜″.

**K.G. 076. Fr. of pottery.** Short spout of vessel. Unglazed, plain; red. 1¾″ × 1″.

**K.G. 081, 154. Frs. of pottery.** White glaze on both sides, with pattern in pale blue. Hard white slip under glaze. *081*, 2¼″ × 1½″. Pl. CXVIII. *0154*, glaze nearly all perished. Inside, pattern in fine blue line-work showing a sort of knot or cloved work; resembles modern Dutch tile painting. 2″ × 1⅜″. Pl. CXVIII.

**K.G. 082, 95, 98, 106, 108, 237, 238, 240. Frs. of pottery.** Blue and white, glazed. Gr. fr. (*082*) 2″ × 1⅓″. Pl. CXVIII.

**K.G. 084, 102–3, 107, 239, 241, 245. Frs. of pottery bowls.** Glazed white and painted with arabesque in brown-black and soft dull blue added. Gr. fr. (*0245*) 1½″ × 1⅜″. Pl. CXVIII.

**K.G. 085–6, 160. Frs. of pottery dish.** White glaze, arabesque pattern in black outline, and bands of grey blue between double lines of chief design. Centre covered with rosette. 2⅞″ × 1⅞″. Pl. CXVIII.

**K.G. 088, 110, 111. Frs. of pottery.** White glaze; blue and black patterns. *088*, 2½″ × 1½″. Pl. CXVIII. *0110*, shows in one panel floral design in blue and black, and in the two flanking panels black cross-hatching. 1⅝″ × 1½″. *0111*, circles of thin black lines, touching each other and black scroll ground in intervals. 1″ × 1″.

**K.G. 089. Fr. of pottery bowl.** Glazed in and out with greenish white. Pattern inside similar to preceding. 1¼″ × ¾″.

**K.G. 090, 104, 155. Frs. of pottery bowls.** White glaze, with black and blue decoration. *0155*, shows square lattice of cobalt blue bars with thin diagonals in black. Gr. fr. (*0155*) 2½″ × 1½″. Pl. CXVIII.

**K.G. 091, 92. Frs. of pottery vessels.** Deeply incised patterns. *091*, shows large circular medallion with eight-petalled rosette in centre; and eight panels around. 2¼″, 2⅝″ × 2¼″. *092*, a broad zone of deeply incised zigzag. 2¾″ × 2¾″. Pl. CXV.

**K.G. 096. Fr. of glass,** prob. originally moulded with vertical ribs. Horn colour. 1⅝″ × 1¼″.

**K.G. 097, 98. Frs. of pottery.** *097*, part of rim. Lip black. Outside, annular line with slightly oblique, thin hatching lines downward. Inside, part of loop of hook ornament with 'scribbled' line across. 1⅞″ × 1⅞″. *098*, shows annular line from which descends a group of 'triglyph' lines and 'fish-tail' ornament in 'metope'. 1⅝″ × 1⅝″.

**K.G. 099. Fr. of pottery dish.** Glazed white. Upper side, part of arabesque rosette; within, five radiating black leaves with closely packed dots between. 1$\frac{5}{16}$″ × 1¼″. Pl. CXVIII.

**K.G. 0100, 143, 145. Frs. of pottery.** White glaze. Black and grey patterns. *0100*, above an annular line Chinese character in bold brushwork. 1⅝″ × 1⅞″. Pl. CXVIII. *0143*, broad zone filled with very stylized upstanding trefoil leaves, white, in pairs. Between the repeats of these leaves, a circle with ring of six dots. Lower zone divided by five-line 'triglyphs'. 2¾″ × 2⅝″. Pl. CXVIII. *0145*, edge painted. Inside, a zone of cross-hatching between annular lines. 2¼″ × 1⅞″. Pl. CXVIII.

**K.G. 0101, 265. Frs. of pottery dishes.** Intaglio moulding under white glaze. Edge painted cobalt blue. Gr. fr. (*0101*) 3″ × 1¾″.

**K.G. 0112. Fr. of pottery jar.** Unglazed, unpainted. Red. 2⅝″ × 1⅝″.

**K.G. 0115, 158–9, 162–6, 188–9, 199, 201, 203, 232–4, 288, 302–6. Frs. of glass vessels, glass knobs, and beads.** Colours, horn white, various shades of green and blue, russet. Gr. fr. (*0302*) 1⅝″ × ⅝″.

**K.G. 0116–7. Chips of stone.**

**K.G. 0118. Stone,** pointed-oval, grey, with one flat face, other convex. Much sand-worn and grooved. Length 1⅜″.

**K.G. 0120. Pottery bowl.** Unglazed; plain, red. Side almost upright turning under rapidly to small simple foot. Diam. 5⅞″; H. 2¼″. Pl. CXIV.

**K.G. 0127. Fr. of pottery.** Unglazed, grey with buff surface. Painted outside, similar to K.G. 039. 1¼″ × 1⅜″. Pl. CXIV.

**K.G. 0131. Fr. of pottery vessel.** Buff, unglazed, painted with a series of quadrangular panels. The interior angles filled with solid black; and clumsy fringe of projecting lines. 3$\frac{5}{16}$″ × 2¼″. Pl. CXIII.

**K.G. 0142. Fr. of pottery jar,** unglazed. Stem partly hollow. Diam. 2⅜″; H. 3″.

**K.G. 0147. Fr. of pottery,** glazed white outside and fine turquoise inside. Boldly painted floral pattern inside, with touches of cobalt in pattern. 1⅝″ × 1$\frac{5}{16}$″.

**K.G. 0148, 261. Frs. of pottery,** glazed white. Patterns painted in grey-black with washes of bright green. *0148*, 2⅝″ × 1¾″. *0261*, 2″ × 2″. Pl. CXVIII.

**K.G. 0153. Fr. of pottery bowl.** White glaze; painted pattern in black and blue. 1⅝″ × 1½″. Pl. CXVIII.

**K.G. 0167–87, 190–6, 198, 289, 300, 307–10. Frs. of glass bangles,** some straight, some spiral. Several in various mixed colours, with jewel-like knobs and pipings and marblings. Colours dark blue, light blue, shades of green, yellow, red, black, white. Some opaque, others translucent. Pls. CXVI, CXVIII.

**K.G. 0202. Paste bead.** Yellow with three red-brown rosettes having green centres. Diam. ⅝".

**K.G. 0204, 205, 235, 276, 279, 281, 287, 290, 296. Frs. of stones.**

**K.G. 0206. Stone arrow-head,** pointed-oval, brown; little worn. Length 1⅝".

**K.G. 0207. Iron arrow-head.** Section of blade, an elongated lozenge; outline, narrow leaf-shaped. Below widest part it narrows to a hexagon below which is tang. 2 1/16" × 5/16". Pl. CXVI.

**K.G. 0219, 227, 228. Frs. of pottery.** White glaze with black patterns. Av. 1¼" × 1¼".

**K.G. 0242. Fr. of pottery bowl.** Glazed, outside blue and black lines. 1⅛" × 1¼".

**K.G. 0246. Fr. of pottery dish.** White glaze, inside with pattern in black, blue and green. 2⅝" × 1⅞". Pl. CXVIII.

**K.G. 0266. Fr. of stone disc,** drilled through centre. Whorl (?). Diam. 1⅜".

**K.G. 0269, 272–4. Frs. of worked alabaster.**

**K.G. 0283–4, 300. Shells.** Gr. fr. ⅝" × 7/16".

**K.G. 0286. Bronze plate,** roughly lozenge-shaped with solid round stem at one corner. 1⅛" × 13/16". Pl. CXVI.

**K.G. 0303, 305, 306. Frs. of glass.** *0303*, rich blue, moulded in scroll pattern in relief. 1⅛" × ⅝" × ⅛"–1/16". *0305*, green-white, marbled and veined with rich red. ⅞" × ⅜" × 1/20". *0306*, from shoulder of vessel, pale pink. 1 3/16" × ⅞". Pl. CXVI.

## OBJECTS FOUND AT MOUND (R.R.) I, NORTH OF RĀMRŪD

**Md. (R.R.) I. 01. Fr. of pottery bowl,** unglazed. Red. Ribbed inside, causing variations in thickness. Painted with two annular lines. Darker slip wiped over upper part. Vert. ch. 3⅜"; hor. ch. 2½".

**Md. (R.R.) I. 02, 28. Frs. of shallow bowls,** deep saucer shape, red. *02*, with darker slip slightly discoloured inside in burning. Whitish paste adhering to inner surface. Hor. ch. 3⅜"; vert. ch. 2¼". *028*, 2" × 1 1/16".

**Md. (R.R.) I. 03, 7. Frs. of pottery vessels.** *03*, conical saucer shape. Dark red with slightly lighter slip. On outside, part of slightly incised pattern, making two flattened triangles apex to apex. Hor. ch. 2⅜"; vert. 2¼". *07*, prob. from beaker-shaped pot, with incised line on outside. Red, coated with dark slip. Hor. ch. 1⅜"; vert. ch. 1⅝".

**Md. (R.R.) I. 04. Fr. of pottery vessel,** pink inside to nearly black outside; outside coated with greenish-yellow slip. Hor. ch. 1⅞"; vert. ch. 1⅝".

**Md. (R.R.) I. 05, 33, 40. Frs. of pottery vessels,** irregularly ribbed, green-buff outside. Gr. fr. hor. ch. 2⅛"; vert. ch. 2⅜".

**Md. (R.R.) I. 06. Fr. from wall of pottery vessel,** dark grey. Outer surface chipped in places, and showing vertical and oblique marks of scraper (cf. Pumpelly, *Explorations in Turkestan*, 1904, I. Pl. 14, figs. 3 and 4). Hor. ch. 1⅞"; vert. ch. 2".

**Md. (R.R.) I. 08 + 30, 31, 35. Frs. of pottery vessels.** Dove grey, dense, and well washed. All painted in linear patterns in black of varying density. *08 + 030*. Pattern: broad solid band at junction of rim and shoulder and two similar bands 1" below. In space between, a series of roughly drawn zigzag lines which form, with band above and band below, a series of triangles having their apices alternately in upper and lower bands resp. Hor. ch. 3⅜"; vert. ch. 2". *031*. Pattern on outside: a band on rim extending to inside, two bands below. Below these a series of vertical lines, curving to L. at their upper ends, and 'feathered' with four strokes sloping upward from the L. side. Hor. ch. 1"; vert. ch. 1¼". *035*. Pattern on outside: a broad solid band from which a few unexplained touches project. Hor. ch. 1½"; vert. ch. ⅞".

**Md. (R.R.) I. 09–10, 38–9, 41. Frs. from pottery vessels.** Wheel-made. Buff, painted with linear designs in black (annular bands, squares, triangles), of varying shades. For pattern of 09, cf. Md. II. 08, Pl. CXIII. Gr. fr. (*010*) hor. ch. 2⅛" × 1⅛".

**Md. (R.R.) I. 011. Fr. of pottery vessel,** buff. Painted with two zones of hatched triangles between border lines. 2¾" × 2⅓". Pl. CIII.

**Md. (R.R.) I. 012–16. Frs. of stone jars,** similar to S.S. 012. *012*, alabaster, opaque, white. Part of side and flat outward leaning rim. H. 1"; hor. ch. 1". *013*, alabaster, translucent, buff with darker veins. Part of side and very broad flat brim. H. ⅞"; hor. ch. 1⅛". *014*, grey-white marble (?). Thin with rim sharply overlapping outwards; inner edge a sharp right angle with inside surface. H. 1"; hor. ch. ⅞". *015*, same material as 014. Part of wall. H. ⅞"; hor. ch. 1". *016*, same as last, but darker grey. Shows annular ribs inside as from turning tool. H. ⅝"; hor. ch. ⅞".

**Md. (R.R.) I. 017, 19, 26, 27. Frs. of glass bangles.** Keel-shape section, flat side inside. *017*, dark blue with raised white and yellow spots on keel. Ch. 1 13/16". *019*, dirty white with longitudinal bands of brown-yellow. Ch. 1⅜". *026*, dirty white, almost covered with turquoise blue outside, and band of lemon yellow at each side edge. Raised spots of white with touches of brown-yellow, lemon yellow, and blue. Ch. ⅞". *027*, turquoise blue with lemon-yellow and brown-yellow raised spots. Ch. ⅝".

**Md. (R.R.) I. 018, 20, 21. Frs. of glass vessels.** *018*, rich cobalt blue, curved in one direction, straight in other. Length ⅞"; ch. ⅝". *020*, pale green. Rim rolled outward

and emphasized with 'check' along inner edge. H. ⅝"; ch. ½". *021*, pale green, part of body of vessel. Hor. ch. ⅝"; vert. outer ch. ½".

**Md. (R.R.) I. 022, 23, 24, 25, 29. Frs. from pottery vessels.** Body varies from pale buff to red. Glazed turquoise and painted with annular lines or floral forms in black. Gr. fr. (*022*) 1½" × 1½". Pl. CXVIII.

**Md. (R.R.) I. 032, 36. Frs. of pottery vessels.** Dark grey and moderately dense. *032*, inside smooth, outside roughly incised with triangle drawn with double lines for the sides, and horizontal hatching within the inner triangle. Hor. ch. ⅞"; vert. ch. 1¼". *036*, outside incised pattern: a horizontal line at one edge, with three irreg. perpendicular strokes running from it; on one side a series of horizontal zigzags, and on other oblique hatching. Hor. ch. 1¼"; vert. ch. 1½".

**Md. (R.R.) I. 042. Fr. of pottery vessel,** foot. Grey with dull brown surface. Attempt at ring base is evident; the bottom surface slightly concave. Hor. ch. 2"; H. 1".

**Md. (R.R.) I. 043–51. Stone artefacts.** *043*, grey limestone pointed oval flat on both sides, with steep edge trimming on one side. Pl. CXII. *044*, grey-white, blunt one end, rounded point at other (broken). *045*, fr. of pinkish grey knife-blade. *046*, green-grey jasper arrow-point. Pl. CXII. *047*, dark grey jasper arrow-point. Pl. CXII. *048*, flint (?), finely worked arrow-point, lower part missing. Pl. CXII. *049–51*, flint flakes (scrapers ?). Largest, *047*, length 1⅝"; width 1⅛".

OBJECTS FOUND AT MOUND (R.R.) II, NORTH OF RĀMRŪD

**Md. (R.R.) II. 01, 6, 16, 17, 19–20. Frs. of pottery vessels.** Buff, painted with linear patterns in black. Pattern of willow-leaf type. Gr. fr. (*06*) hor. ch. 2"; vert. ch. 3".

**Md. (R.R.) II. 02. Fr. of pottery vessel.** Pink-buff changing to grey at lower part, and at that part greenish-buff outer surface (slip ?). Outside painted pattern: round base of short neck, a pair of thick annular lines. Below, a voluted scroll with fringe of feathery spines on upper limb. Two black spots occur above and a third to extreme R. Scroll appears to be attached to another to extreme L. Inside, a pair of roughly incised lines. Hor. ch. 2⅞"; vert. 2⅞". Pl. CXIV.

**Md. (R.R.) II. 03, 8, 23. Frs. of pottery vessels.** *03*, pink-buff body with green-buff outer surface. Painted in washy black with pattern similar to Md. (R.R.) I. 09. Pl. CXIII. Hor. ch. 3⅜"; vert. ch. 3". *08*, burnt dark grey but surfaces dark pinkish-buff. Pattern as above, Pl. CXIII. Hor. ch. 2½"; vert. ch. 2". *023*, shoulder, neck and rim, distorted in burning and discoloured. Rim painted with band, and two bands below neck. Below these, square pattern as above. Hor. ch. 2"; vert. ch. 2½".

**Md. (R.R.) II. 04. Fr. of pottery vessel.** Pink-buff. Painted in brown-black on both sides. Rim, solid band of black. Outside, an annular line ⅜" below rim, below which a row of touching lozenge shapes in outline, filled with cross-hatching. Inside a single large lozenge, with broad serrated band through centre, parallel to sides. Hor. ch. 3"; vert. ch. 2".

**Md. (R.R.) II. 05. Fr. of upper edge of pottery bowl;** faintly ribbed inside, buff. Rim painted with broad band from which, on inside, depend three zigzag lines, very freely drawn. Hor. ch. 4"; vert. ch. 2¼".

**Md. (R.R.) II. 07, 18. Frs. from wall of pottery vessels.** Pink-buff, with green-buff surfaces. *07*, pattern painted in brown, with leaves and zigzag lines. Hor. ch. 2¼"; vert. ch. 2¼". Pl. CXIII. *018*, pattern painted in good black, similar to above. Hor. ch. 2"; vert. ch. 1⅞". Pl. CXIII.

**Md. (R.R.) II. 09, 10. Fr. of pottery vessel.** Red. Painted with two annular bands, 1¼" apart, and between, a series of thin vertical strokes; prob. 'triglyph' ornament. Vert. ch. 1⅞"; hor. ch. 1⅝".

**Md. (R.R.) II. 011. Fr. of pottery vessel.** Rich red; surface polished. On outer surface two diverging incised lines, with slightly projecting surface between; prob. root of handle. Vert. ch. ⅝"; hor. ch. 1⅜".

**Md. (R.R.) II. 012, 41. Frs. from wall of pottery vessels.** Green-buff. Painted with opposed semicircles and background hatched in various directions. Gr. fr. (*012*) vert. ch. 1¼"; hor. ch. 1⅝".

**Md. (R.R.) II. 013. Fr. of pottery vessel.** Green-buff. Painted with annular line from which depend semicircles hatched vertically. Below, a second row of semicircles, with fringe of short strokes hanging downwards. Vert. ch. 1⅜"; hor. ch. 1 5/16". Pl. CXIII.

**Md. (R.R.) II. 014, 22. Frs. of pottery vessels.** *014*, pink-grey with green-buff surface, painted with two pairs of broad annular lines ⅝" apart. Between, a series of touching isosceles triangles, one long side nearly vertical. Triangles hatched parallel to base. *022*, dark-grey with green-buff surface. Shows similar pattern at one end, and part of curved line with hatching at other. *014*, vert. ch. 1⅜"; hor. ch. 2¼". *022*, vert. ch. 2"; hor. ch. 1".

**Md. (R.R.) II. 015. Fr. of pottery vessel.** Buff, with green-buff outer surface. Painted with apparent modification of willow-leaf motif. Vert. ch. 1⅞"; hor. ch. 2¼".

**Md. (R.R.) II. 021. Fr. of pottery jar.** Dark grey with buff surface. Painted solid band on rim; below, two annular lines with group of three vertical zigzag lines depending from the lower one. R. and L. vertical rows of joining lozenges, cross-hatched. Vert. ch. 2½"; hor. ch. 2⅝". Pl. CXIV.

**Md. (R.R.) II. 024, 42. Frs. of pottery vessels.** Buff. *024*, coated outside green-buff, painted with two pairs of annular lines, and two bands of zigzag lines between. *042*, same pattern, but part missing. *024*, vert. ch. 1½"; hor. ch. 1¾". *042*, vert. ch. ⅞"; hor. ch. 1¼".

**Md. (R.R.) II. 025. Fr. of pottery vessel.** Dark grey, very hard; unpainted. Vert. ch. 1½"; hor. ch. 3¼".

**Md. (R.R.) II. 026. Fr. of pottery vessel.** Purple-brown; unpainted, and faintly ribbed. Vert. ch. 2¼"; hor. ch. 1⅜".

**Md. (R.R.) II. 027. Pottery jar.** Buff to grey. Distorted at mouth, which is also broken. Pear-shaped broad end below, with solid tapering foot. (For foot, cf. Pumpelly, *loc. cit.* i. Pl. 20, Fig. 1.) H. 3¾"; gr. diam. 2 5/16". Pl. CXIV.

**Md. (R.R.) II. 028. Fr. of stone jar,** white and cream, stratified with grey. Prob. lathe-turned; broken on all sides. Flat bottom and straight sides leaning slightly inwards as they rise. Inside, bottom bowl-shaped. (Resembles Pumpelly, *loc. cit.* i. Pl. 45, Fig. 5 and Egyptian stone jars.) H. 2¼"; ch. of base 2¼".

**Md. (R.R.) II. 029. Bronze rod,** in five pieces, incomplete; tapering at both ends, where it is broken away. L. 4½"; gr. thickness 3/16" tapering to ⅛".

**Md. (R.R.) II. 030–1. Two frs. of roughly worked flint.** *030*, with curved point, prob. a borer. L. 1 3/16"; gr. diam. 5/16". *031*, oblong, rounded at one end and broken at other. Flat on one side, ridge on other; edges worked. Scraper (?). L. 1½"; diam. ⅝".

**Md. (R.R.) II. 032. Fr. of stone bead,** grey; steatite (?). Barrel-shaped, ribbed round centre and with row of ring and dot on each side of ribbing. Drilled with large hole. L. ⅝"; diam. ½".

**Md. (R.R.) II. 033. Fr. from flat rim of alabaster jar;** overhanging outer edge of lip; inner prob. flush with surface, but worn away. Cf. Md. (R.R.) I. 014. H. ¼"; outer ch. ⅞".

**Md. (R.R.) II. 034–5. Frs. of bronze.** *034* ½"×⅜"; *035* 1"×7/16"×¼".

**Md. (R.R.) II. 036. Fr. of pottery jar,** buff. Foot broken away. Gr. H. 2"; ch. 3½".

**Md. (R.R.) II. 037. Pottery jar.** Pale terra-cotta. Nearly straight sides leading to broad mouth with simple rim. Large piece broken out of one side (cf. Pumpelly, *loc. cit.* i. Pl. 11, Fig. 1). H. 5"; diam. of foot 1⅞". Pl. CXIV.

**Md. (R.R.) II. 038. Fr. of pottery vessel.** Grey; faintly ribbed inside. Painted with band on lip, a pair of faint thick lines below, with adjoining lozenge shapes between; each lozenge hatched vertically. H. 1"; Hor. ch. 1 7/16".

**Md. (R.R.) II. 039. Fr. of pottery vessel,** buff-grey coated buff. Painted with annular line round root of neck (?), and below a band of *S* shapes suggesting a debased guilloche. Below, a second annular line with downward hatching. Vert. ch. 1½"; hor. ch. 1⅝".

**Md. (R.R.) II. 040. Fr. of pottery vessel,** buff. Painted with pair of lines round root of neck. Below, two pairs of curving lines, 'feathered' with short faint strokes on their upper side. From the lower line of each pair there is downward hatching. Vert. ch. 1"; hor. ch. 2¼". Pl. CXIII.

**Md. (R.R.) II. 043. Piece of slag.** Grey. L. 1¾"; gr. diam. ⅝".

## OBJECTS FOUND AT MOUND R.R. III NORTH OF RĀMRŪD

**R.R. III. Md. III. 01–5. Frs. of bronze.** All corroded. *01*, fr. of rod, 2"×½". Pl. CXVI.

**R.R. III. Md. III. 06, 07. Frs. of stone implements.** *06*, broken blade of green jasper with battered back (*à dos abattu*); opposite edge used. Length ⅞". *07*, coarsely worked flake. ⅞"×½".

**R.R. III. 01. Fr. of shallow pottery bowl,** pale buff. Form, echinus; painted in dark purple-brown. On rim plain band. Below, outside, a thick line and in space a band of lozenge shapes, horizontal corners touching, vertical corners touching line and rim band. Lozenges filled with cross-hatching. *c.* 2¼"×2¼".

**R.R. III. 02. Fr. of pottery vessel,** pale buff. Painted in dark purple-brown. Two thick lines round bulge of curve, above which two sets of slightly curved hatching, meeting to form V shape. 2"×2½".

**R.R. III. 03. Fr. of pottery vessel.** Warm buff; slightly greenish outside. Orn. in purple-black; rim painted solid. At root of neck, thick encircling line. Below, two bands, bounded by two lines, with sort of chequer between each pair of lines. Chequer is formed by a succession of pairs of squares, hatched vertically. Pattern probably adopted from woven reeds. H. with rim hor. 2½"; ch. from root of neck *c.* 2½". Pl. CXIII.

**R.R. III. 04. Fr. of pottery vessel,** warm buff; dark olive buff outside. Painted in purple-black angular forms with thin cross-hatching within. 2¼"×1¼"×5/16".

**R.R. III. 05. Fr. of pottery vessel,** buff. Painted with two bands of double lines in black; between them long willow-leaf forms arranged in zigzag order. Leaves, hatched. Other encircling lines, one above and other below, indicating further bands of same (?) orn. H. 6¾"; hor. ch. 5¼". Pl. CXIII.

**R.R. III. 06. Fr. of pottery vessel,** pale terra-cotta; greenish buff outside. Form similar to 08. Painted in brown, a band 1 3/16" wide round shoulders, consisting of two broad border lines with triangles between as in 07. Below, another line and two segmental downward curved lines, with hatching in the spandrel. H. 2"; ch. across neck 3".

**R.R. III. 07. Fr. of pottery vessel.** Shape prob. similar to 08. Reddish buff, greenish buff outside. Painted

in brown-black, round root of neck a thick line; below, a band of long hatched triangles, between two thick lines. Ch. 1½"; width 2"; thick. 5/16".

**R.R. III. 08. Fr. of pottery vessel.** Outside greenish buff; inside pale terra-cotta. Painted round shoulder, band of zigzag contained between a pair of thick lines. Above, round root of neck, a thick line. Below, another thick line below which fr. of solid rectangular pattern with scalloped outer edge and open centre. 4⅜"×2½"×¼".

**R.R. III. 09. Fr. of pottery jar,** brownish terra-cotta. Overhanging lip; slightly swelling side. Lip painted black. Below, outside, thick line, and below that a band of curved-sided lozenges hatched, between thick lines. Strongly ribbed inside, smooth outside. H. 1⅝"; ch. 1¾".

**R.R. III. 010. Fr. of pottery vessel,** fine grain terra-cotta of pale colour. Well-smoothed surface. From rather long neck the shoulders spread very gradually. Painted with three parallel rings round narrowest part of neck. Below, an ibex drawn in outline, eye circular, horn well curved, ear a thin line, hair shown by wavy lines. Line of back almost straight. In middle of back appears to be a solid vertical band and farther back the curve of another horn in opposite direction to first. All painting in washy brown. Shape, workmanship, and orn. evidence a different type from the geometrical pottery. Well burnt. H. 3⅜"; ch. at widest 3¾"; gr. thickness ¼". Pl. CXIV.

**R.R. III. 011. Fr. of pottery vessel.** Shape probably echinus. Rim painted purple-black, on shoulder, between two lines a group of eight vertical lines of irreg. upward-curved scallops. Ch. 2¼"; H. 1⅝"; thickness 5/16". Pl. CXIII.

**R.R. III. 012. Fr. of pottery bowl,** terra-cotta; appears to be bottom of shallow saucer-shaped bowl. Rough inside, smoothed outside. Small flat foot without mouldings. Double line faintly incised encircles foot at a distance of about ⅝". Ends of 'circle' do not meet but miss, forming an unintentional spiral. Bowl was probably finished in an inverted position on wheel. Ch. 4"; diam. of foot 1⅜"; gr. thickness c. 3/16".

**R.R. III. 013. Pottery jar,** in frs. now joined. Wheel-made; pale buff. Echinus shape; no foot. Upper part painted with band of zigzag of four-lined bends, between thick border lines. Round short neck a broad line, and another round junction of upper and lower curves. Paint, brown; execution rough. H. 4"; diam. 5"; width of mouth 2¾". Pl. CXIV.

**R.R. III. 014. Fr. of pottery vessel,** terra-cotta similar to 019; prob. part of the same vessel. 1¼"×1½"×¼".

**R.R. III. 015. Fr. of stone vessel.** Slate grey. Carved on outer surface with an upper edge, three reed mouldings below a flat fillet from which depend five wavy bands. To R. pattern changes, but too fragmentary. Whole piece cut to circular curve, but broken at all sides. Hor. ch. 1¼"; H. ⅞"; thickness 3/16". Pl. CXIII.

**R.R. III. 016. Small pottery jar,** complete; pinkish buff. Quasi-echinus form, flat underneath; seems to have contained a whitish paste which is slopped down side. No orn. H. 2¼"; diam. 2⅝"; width of mouth 1 7/16"; of base 1". Pl. CXIV.

**R.R. III. 017. Fr. from wall of pottery vessel,** buff. Painted with encircling line from which a pair of vertical zigzag lines. To L. part of long leaf-shape with hatching. Ch. 2⅜"×1½".

**R.R. III. 018. Fr. of pottery vessel,** slate grey throughout. Rim delicately tapering in section and slightly everted. Painted in warm brown lines. Lip painted; below, a line, then a band of triangles as in 07, but turned the reverse way. Body with a quality approaching porcelain. H. 1¾"; ch. 1 7/16"; ⅛–1/16" thick. Pl. CXIII.

**R.R. III. 019. Fr. of wall of pottery,** fine terra-cotta wiped over outside with richer coloured clay. No orn. Hor. ch. 1½"; H. 2"; thick. ¼".

**R.R. III. 020. Fr. of pottery vessel,** pinkish buff; green buff outside. Painted with band of segmental lines in purple-black springing from border lines; background hatched in two directions. Vert. ch. 1⅜"; hor. ch. 1¾"; thick. ⅛".

**R.R. III. 021–30. Frs. of worked stone.** *021*, white, conical, blunt point. H. 1¾". *022*, white, half of whorl. Diam. 1¾". *023, 024, 026–30*, flint flakes, scrapers. Gr. measure, *026*, 1⅛"×1". *025*, white, opaque. Thin disc pierced through centre, and ribbed on both surfaces. Very exactly cut. Diam. ⅝".

**Md. (R.R.) III. 01. Pottery jar.** Buff; of tubular shape, very slightly narrowing upwards and again very slightly expanding near mouth, which is broken away; flat base. Painted with pair of annular lines just above widest part. Sides divided into four vertical panels by pairs of lines. In each panel a broad line springs from annular line and curves to R. to about centre of height. A reverse curve meets it and curves upward. H. 3¼"; gr. diam. 2¼". Pl. CXIV.

**Md. (R.R.) III. 02. Fr. of pottery vessel,** grey buff, with lighter surface. Burnt hard and distorted at neck by fire. Painted with pair of lines round upper part of shoulder. Above, part of zigzag line; below, willow-leaf pattern as Md. (R.R.) II. 06. Vert. ch. 2¼"; hor. ch. 3".

**Md. (R.R.) III. 03. Fr. of pottery vessel,** grey to buff, with green-buff surface. Round upper part a pair of annular lines, with beginning of solid black panel in centre above. Below, two pendent semicircles, with hatched ground, as Md. (R.R.) II. 012. Vert. ch. 1⅞"; hor. ch. 2½".

**Md. (R.R.) III. 04. Fr. of pottery vessel,** grey, with remains of buff surface; echinus shape. Painted with pair of annular lines at root of short neck. ⅝" below a second pair, and in the slightly sloping space between the two pairs a band of adjoining triangles. Between a third pair of lines, vertical broad leaf with midrib of three lines, and on either side two half-leaves. Vert. ch. 3"; hor. ch. 3½". Pl. CXIII.

**Md. (R.R.) III. 05. Fr. of pottery vessel.** Dark grey with dark buff outer surface. Painted with pair of thick annular lines, and a third ⅞" away. In space between, band of adjoining triangles. Vert. ch. 1¾"; hor. ch. 2"; gr. thick. ⅜".

**Md. (R.R.) III. 06. Fr. of pottery jar,** dark grey coated with dark buff. Painted with pair of annular lines, and part of pattern of semicircles with hatched ground. All much worn. Vert. ch. 1½"; hor. ch. 2½".

**Md. (R.R.) III. 07. Fr. of pottery vessel.** Wheel-made; buff. Below neck, between two pairs of annular lines, a band of two zigzag annular lines. Vert. ch. 1⅝"; hor. ch. 1⅜".

## OBJECTS BROUGHT FROM GROUND BETWEEN R.R. III AND TĀSUKI WELL

**R.R. 01. Fr. of pottery vessel,** terra-cotta. Orn. incised; a downward spreading vertical band enclosed by double lines and roughly crossed in square lattice of double lines, with two incised marks as pattern in each square. To L. a scar where prob. was handle. Hor. ch. 2¾"; H. 2¼"; thick. $\frac{5}{16}$". Pl. CXV.

**R.R. 02–5. Frs. of pottery bowls.** White stoneware (?) body. Glazed white and painted blue. *02*, shows part of deep ring foot. Inside is pattern of two festooned bands, joining, and floral decoration running behind. Vert. ch. 1½"; hor. ch. 1⅜". *03, 05* (joined), show deep ring foot. Inside, kidney-shaped mass of white scrolls on blue ground; thin leaf scrolls outside. Outlined grey. Round foot, two grey lines with meander between. Very Chinese. Vert. ch. 1⅝"; hor. ch. 2¾". Pl. CXVIII. *04*, part of rim. Painted inside, a border 1⅛" wide of meandering blue clouds or ribbon. Vert. ch. 1½"; hor. ch. 1⅛".

**R.R. 06, 12. Frs. of pottery bowl.** Wheel-made; pale buff. *06*, Glazed inside and over rim, grey cucumber-green. Drilled in two places. Vert. ch. 1⅝"; hor. ch. 1⅛". *012*, similarly glazed but slightly darker and mottled. Vert. ch. 1⅜"; hor. ch. 1¾".

**R.R. 07–9. Frs. of pottery bowl (?).** Stoneware (?); nearly white. Glazed white and painted with floral patterns in brown-black. Gr. fr. (*08*) vert. ch. ⅞"; hor. ch. 1".

**R.R. 010. Square slab of stone,** grey brown, with round hollow sunk near one edge about half-way through. Side of sq. 1½"; thick. ½".

**R.R. 011. Fr. of pottery.** Stoneware (?); grey white. Glazed outside with fine blue. Vert. ch. ¾"; hor. ch. 1".

**R.R. 014–20, 24. Glass beads and frs.** Various shades of amber, excepting 019, 20. *014, 15, 17*, roughly spherical, but with facets worked on them. *014, 17* broken. *016, 18*, halves of ellipsoidal beads. *019*, green, barrel-shaped, half missing. *020, 24*, chips of cobalt blue glass. Gr. fr. (*019*) ⅝"×½".

**R.R. 015. Fr. of bronze sheet.** Semi-elliptical with rectangular projection at one end. Long diam. (of half remaining) ⅝", projection ⅜"×¼".

**R.R. 021, 22. Paste beads.** *021*, irregularly spherical, turquoise colour. *022*, roughly made, ring-shaped, half missing. Mottled cobalt. Gr. fr. (*022*) diam. ⅝"; depth $\frac{3}{16}$".

**R.R. 023. Carnelian.** Roughly spherical ball. Diam. ⅜".

**R.R. 025–32. Frs. of glass bangles.** *025*, two layers fused; inner green-white, outer cobalt blue; translucent. Outer surface with two zigzag lines crossing to form lozenges, in opaque white. Section rectangular. Ch. 1$\frac{5}{16}$"; width $\frac{5}{16}$"; thick. $\frac{3}{32}$". *026–30, 32*, opaque grey to black, excepting 028, which is green-brown; *026*, with traces of raised red and white meander; *028*, raised red meander. Gr. fr. (*029*) ch. 1⅜". *031*, translucent dark yellow, keeled on outer flake, flat on inner. On keel a thin cable of opaque white and red-brown. Ch. 2⅜". Pl. CXVI.

**R.R. 033–40. Stone implements.** *033*, jasper arrow-head, pointed oval. Pl. CXII. *034, 36–7, 39*, frs. of knife-blades or scrapers. *035*, jasper blade, broken signs of use. Pl. CXII. *038*, quartz point, broken. Pl. CXII. *040*, flint, curved flake, broken. *040. a*, chalcedony, finely chipped; yellowish.

**R.R. 041–2. Frs. of vessel.** Rim projects slightly outwards, painted. Below rim broad annular line and a group of 8 or 9 vertical lines (' triglyph '). Inside, part of loop of *D* scroll (cf. K.G. 01.a); belongs to vessel similar to K.G. 097. *041*, 1½"×1¼". *042*, painted inside a single curved line with fringe. 2½"×⅝".

**R.R. 043, 66. Stone frs.** *043*. Half of stone disc; whorl (?). Smoothed to keel-shaped edge and showing half of central hole. Stone dark grey, marbled. Diam. 1½"; thick. $\frac{5}{16}$". *066*. Fr. of rim of alabaster jar. Wall $\frac{1}{16}$" thick, curving out to outer edge of rim, which is $\frac{5}{16}$" wide. 1"×⅝".

**R.R. 044. Fr. of vessel.** Narrow annular line of milling outside. 2"×1¾".

**R.R. 045, 63. Pear-shaped pottery jars,** plain, buff. *045*, upper part missing. Diam. 2¾"; H. 1⅜". *063*, thick end downwards with continuation to small solid foot. Broken away at top. H. 6"; diam. of widest part 3". Pl. CXIV.

**R.R. 046–54, 58. Frs. of painted pottery,** buff. *046*, fr. of tubular jar. Outside, annular lines, also vertical cross-hatched lozenge; cf. S.S. 039. 2"×1⅝". *047* same as R.R. VIII. 011. 1¾"×1$\frac{3}{16}$". *048*, similar to K.G. 020. 1⅝"×1½". *049*, pair of vertical lines. To one side a loop with serrated band, as S.S. 085. 2"×1¼". *050*, triple band of vertical zigzags. 1¼"×⅞". *051*, zone of zigzag serrated lines between pairs of annular lines. 3"×1⅝". *052*, fr. of mouth of vessel. Rim painted, and annular and oblique lines below. 1½"×1¾". *053*, ornament same as 046. 1½"×⅞". *054*, with annular line and small portion of willow-leaf pattern. ⅝"×1$\frac{3}{16}$". *058*, outside, a pair of annular lines, and below, a triangle or lozenge. 1½"×1⅜".

**R.R. 055. Fr. of wall of vessel.** Plain, red with buff slip outside. $1\frac{1}{2}'' \times \frac{3}{4}''$.

**R.R. 056–7, 59. Frs. of bowls.** *056*, painted inside, broad annular line. Below, a row of 'fringe' lines. $2'' \times 1\frac{3}{8}''$. *057*, rim painted. Outside, below rim a pair of thick annular lines. Zone between, divided by verticals and traces of 'fringe'. $2\frac{3}{8}'' \times 1\frac{5}{8}''$. *059*, painted outside with a pair of annular lines; on one side a zone of hatched lozenges formed by interlacing zigzags, on other a group of three vertical lines. $1\frac{5}{8}'' \times 1\frac{3}{8}''$.

**R.R. 060–1. Fr. of vessels,** grey. *060*, rim painted. Outside, below rim, a pair of annular lines. Below these a zone of hatched lozenges. $1'' \times \frac{7}{8}''$. *061*, inside, a painted V-shape; 'fringe' round outside. $1\frac{3}{8}'' \times 1''$.

**R.R. 062, 67. Lumps of copper and slag.**

**R.R. 064. Fr. of bowl;** ring foot and lower part; burnt black. $3\frac{1}{4}'' \times 2''$.

**R.R. 068. Fr. of pottery,** grey, thin. Painted with two oblique fringed lines. $1\frac{5}{16}'' \times 1\frac{1}{4}''$. Pl. CXIV.

OBJECTS FOUND AT WATCH-STATION R.R. V

**R.R. v. 01, 5. Frs. of pottery vessels,** covered with rich red slip imperfectly burnished. *01*, shows wide out-curved lip and bulbous side. Prob. from shallow bowl. $3\frac{1}{4}'' \times 1\frac{1}{4}''$. *05*, similar form, but smaller and thinner. $2'' \times 1\frac{1}{2}''$.

**R.R. v. 02, 4, 7. Frs. of coarse pottery.** Red. Gr. fr. (*02*) $3\frac{3}{8}'' \times 3''$.

**R.R. v. 03. Fr. of pottery,** glazed pale green. $2'' \times 2\frac{3}{8}''$.

**R.R. v. 06. Fr. of alabaster (?) bowl.** Prob. part of shallow saucer. Orig. diam. must have been large. Ch. of lip $1\frac{1}{4}''$; width from lip towards centre $1\frac{5}{8}''$.

**R.R. v. 08, 011–13, 15. Miscell. frs. of glass, paste, and bronze.** *015*, turquoise-blue paste, tubular bead. $\frac{3}{16}'' \times \frac{3}{16}''$.

**R.R. v. 09. Jasper arrow-head,** black, leaf-shaped. Pl. CXII.

**R.R. v. 010. Chert arrow-head,** brown grey. Pl. CXII.

**R.R. v. 014. Fr. of pottery vessel.** Red; plain with rich red surface, imperfectly burnished. $2\frac{3}{8}'' \times 2\frac{3}{8}''$.

OBJECTS FOUND AT MOUNDS R.R. VI, VII

**R.R. vi. 01. Jasper arrow-head,** pointed oval. Pl. CXII.

**R.R. vi. 02. Fr. of pottery bowl,** grey body. Echinus form. Painted black on rim and below in series of bands, plain or scalloped. $2\frac{3}{4}'' \times 2\frac{9}{16}'' \times \frac{1}{4}''$.

**R.R. vi. 03–4, 7. Frs. of pottery.** Rich red inner surface, dark grey outside. Gr. fr. (*03*) $2\frac{1}{4}'' \times 2\frac{1}{4}''$.

**R.R. vi. 08. Fr. of alabaster bowl.** Ch. $1\frac{3}{8}''$; thick. at wall $\frac{3}{16}''$.

**R.R. vi. 09–12. Frs. of stone vessels.** White, marbled with thin grey lines; lathe-made. *09*, part of wall; shows lines of lathe-turning. *010*, part of bottom and wall of bowl. *011–12*, parts of wall. Gr. fr. (*010*) ch. inside, hor. $1\frac{1}{4}''$; thick. $\frac{1}{4}''$.

**R.R. vi. 013–17, 33. Stone arrow-heads.** *013*, green jasper, pointed oval. *014*, black chert, coarsely flaked, damaged. *015*, black chert, imperfect. *016*, brown chalcedony, tapering, tang missing. *017*, yellowish chert, pointed oval. *033*, chalcedony, pointed oval, half of. Pl. CXII.

**R.R. vi. 018–21. Stone chips and slag fr.**

**R.R. vii. 01. Fr. of pottery,** dark grey, incised. Pair of incised annular lines; panel of incised zigzags above, which another pair of annular lines divides. On each side, borders of triple incised lines. $1\frac{3}{4}'' \times 2\frac{1}{4}''$. Pl. CXIII.

**R.R. vii. 02–5. Frs. of pottery.** Grey and hard, with incised patterns of 'chalcolithic' type. No paint. *02*, below rim on outside a pair of annular lines; a vertical line, and to R., in 'triglyph' space, three parallel horizontal zigzag lines. $1\frac{1}{4}'' \times 1\frac{1}{2}''$. *03*, between pairs of slightly oblique lines a pair of horizontal lines. Above and below, rows of horizontal zigzag lines. $1\frac{1}{4}'' \times 1\frac{1}{4}''$. *04*, from bottom and side of jar. Bottom quite flat, the side rising straight up from it, or slightly inclined inward as in alabaster and 'chalcolithic' jars. Near base, badly incised annular lines, and above these a group of oblique hatching. Ch. of base $1\frac{7}{8}''$; H. $1\frac{1}{4}''$. *05*, from wall of vessel. Covered with incised cross-hatching. $1\frac{1}{4}'' \times \frac{1}{2}''$.

**R.R vii. 06, 7, 10–12, 14, 16, 20. Frs. of pottery.** *06*, grey. Traces of slip or glaze washed on outside. Inside faintly ribbed. $2\frac{1}{4}'' \times 2\frac{1}{2}''$. *07*, dove-grey. Ring base; under-surface dished. Diam. $1\frac{7}{8}''$; H. $\frac{1}{2}''$. *010*, dark brown with remains of brown slip or glaze. Lip out-turned with wavy upper surface. Faint ribbing inside and out. $2\frac{3}{8}'' \times 2\frac{3}{8}''$. *011*, similar to preceding but lip coarser. $2\frac{1}{2}'' \times 3''$. *012*, red. Plain. $1\frac{7}{8}'' \times 1\frac{3}{4}''$. *014*, from large ring base. Fine red, slightly burnished. $2\frac{1}{4}'' \times 1\frac{7}{8}''$. *016*, lip out-turned and flat on top. Buff with fine red slip, prob. once burnished. $3\frac{1}{4}'' \times 1''$. *020*, upper part of wall leans to form graceful lip. Red, surface originally well burnished. $1\frac{3}{8}'' \times 1\frac{1}{4}''$. Pl. CXV.

**R.R. vii. 08–9, 13, 27. Frs. of pottery,** 'chalcolithic'. *08*, buff; shows pair of annular lines in brown black. $2\frac{1}{4}'' \times 1\frac{3}{4}''$. *09*, red. Shows raised keel-shaped rib painted black, and annular lines below it. Same type as Machi. 010+011. $3\frac{1}{4}'' \times 2\frac{1}{4}''$. *013*, buff, plain. $1\frac{3}{4}'' \times 1\frac{3}{8}''$. *027*, buff. Traces of paint. $1\frac{3}{4}'' \times 1\frac{1}{2}''$.

**R.R. vii. 015. Fr. of pottery,** grey, coarse. Incised patterns consisting of zone of zigzag, hatched between

pairs of annular lines. Above, panels of vertical lines and horizontal zigzags. $3\frac{1}{4}'' \times 2\frac{1}{4}''$. Pl. CXV.

**R.R. VII. 017. Fr. of water-worn stone.** $2'' \times \frac{7}{8}''$.

**R.R. VII. 018–19, 21–2. Frs. of alabaster vessels.** *018*, from side of small bowl. Marbled grey. $1\frac{1}{2}'' \times 1''$. *019*, from mouth of jar. Usual outward hanging lip with broad flat upper surface. Marbled grey. Ch. of fr. $1\frac{3}{4}''$; H. $\frac{3}{4}''$. *021*, from mouth and side of bowl; yellow streaked with red. $1\frac{1}{2}'' \times 1\frac{3}{4}''$. *022*, thick disc foot of bowl and beginning of wall; pale pink. Diam. of base $1\frac{1}{4}''$; H. of fr. $\frac{3}{4}''$.

**R.R. VII. 024–6. Stone arrow-heads.** *024*, grey pointed oval. *025*, brown jasper, pointed oval. *026*, black chert, unusually thin. Pl. CXII.

OBJECTS FOUND AT MOUNDS R.R. VIII, IX, XI

**R.R. VIII. 02, 17–18, 30. Frs. of alabaster jars** or bowls. Gr. fr. (030) $2'' \times 1\frac{1}{2}''$.

**R.R. VIII. 03, 4, 7. Flint (?) chips.**

**R.R. VIII. 010, 16. Frs. of pottery.** Thin grey, 'chalcolithic'. Each shows painted straight lip of vessel and below a pair of annular lines. Inside, a pair of festooned lines with slightly oblique hatching. Gr. fr. (*016*) $1\frac{1}{4}'' \times 1\frac{1}{16}''$.

**R.R. VIII. 011. Fr. of pottery.** Lip painted with solid brown-black band. Outside, below lip, between broad annular lines, painted ornament consists of a pair of stepped lines repeated. $2\frac{3}{4}'' \times 2\frac{1}{4}''$. Pl. CXIII.

**R.R. VIII. 012, 24. Frs. of pottery;** buff; painted. *012*, pair of annular lines round root of neck; below, a hook shape with cross-hatched limbs. $5'' \times 3\frac{3}{8}''$. Pl. CXIII. *024*, from wall of jar. Four grouped vertical rows of large zigzag. To one side a pair of vertical lines. $3\frac{1}{2}'' \times 3\frac{1}{2}''$.

**R.R. VIII. 014, 19, 21, 23, 25, 28. Frs. of pottery,** painted; buff. *014*, annular band and 'scrabbled' zigzag. $1\frac{1}{2}'' \times 1''$. *019*, a pair of plain lines and to L. a vertical band of three parallel zigzags. $2\frac{1}{8}'' \times 3\frac{3}{8}''$. *021*, part of two broad 'scrabbled' zigzags. $1\frac{3}{8}'' \times 1''$. *023*, two annular lines and below two zigzag lines. $1\frac{3}{16}'' \times 1''$. *025*, pair of thick annular lines and part of 'scrabbled' pattern. $2'' \times 1\frac{3}{4}''$. *028*, two pairs of lines touching each other at right angles. $1\frac{1}{4}'' \times 1\frac{3}{8}''$.

**R.R. IX. 01. Fr. of pottery vessel,** buff. Painted in brown with zigzag in double lines and cross-hatched kite shapes. $2\frac{1}{4}'' \times 2\frac{1}{4}'' \times \frac{3}{16}''$. Pl. CXIII.

**R.R. IX. 02. Fr. of pottery vessel,** grey body, green-buff outer surface. Painted in brown-black, with band of hollow-sided hatched squares; long hatched leaf shapes meeting at points below double line. $3\frac{1}{4}'' \times 3\frac{3}{8}'' \times \frac{1}{4}''$. Pl. CXIII.

**R.R. IX. 03. Fr. of small pottery vessel,** buff; outside, greenish. Orn. in brown-black lines, two bands and narrow hatched leaf pattern. $1\frac{3}{8}'' \times 1\frac{1}{4}'' \times \frac{3}{16}''$.

**R.R. IX. 05. Jasper arrow-head,** pinkish-brown, notched. Pl. CXII.

**R.R. IX. 06. Jasper arrow-head,** red, pointed oval, imperfect. Pl. CXII.

**R.R. IX. 09. Fr. of pottery,** buff, with traces of brown pattern. $\frac{9}{16}'' \times \frac{1}{2}''$.

**R.R. IX. 010–21. Flint chips.**

**R.R. IX. 022. Fr. of bronze.** Section like that of two-edged sword blade. $1\frac{3}{8}'' \times 1\frac{3}{16}''$.

**R.R. IX. 026. Bronze rod,** tapering very gradually towards one end and rapidly towards other. Corroded and broken into several pieces. Length $5\frac{3}{8}''$; gr. thickness $\frac{5}{16}''$. Pl. CXVI.

**R.R. XI. 01. Fr. of alabaster jar,** pink-banded, prob. lathe-turned. Part of bottom and wall. Bottom flat; wall cylindrical, spreading slightly and gradually towards base. Inside of wall is not parallel with outside. Inside, bottom is bowl-shaped, while outside, the slightly spreading wall comes down squarely to base. Ch. of outside curve $2\frac{1}{4}''$; H. $1\frac{3}{4}''$; thickness of wall $\frac{5}{16}''$ to $\frac{7}{16}''$.

**R.R. XI. 02. Fr. of alabaster jar (?),** with red-brown strata bands. Ch. $1\frac{1}{4}''$; H. $1\frac{1}{4}''$.

**R.R. XI. 03–8. Frs. of pottery vessels,** grey. Painted with brown-black lines and hatched leaf-forms. Gr. fr. (*05*) $1'' \times \frac{15}{16}'' \times \frac{3}{16}''$.

**R.R. XI. 010. Fr. of pottery bowl,** buff. Painted inside with border of extended triangles and in each triangle a 'scrabbled' curved line; outside eroded. $3\frac{3}{4}'' \times 3\frac{3}{4}''$.

**R.R. XI. 011. Limestone pendant,** black and white, perforated. Pl. CXII.

**R.R. XI. 012–13. Two bronze wire loops,** probably link broken into two pieces. $\frac{3}{4}'' \times \frac{3}{4}''$. Pl. CXVI.

**R.R. XI. 014. Bronze seal,** in relief, imperfect, prob. intended for making ink impressions. Square face, with central quatrefoil and four circles, one in each corner. Two concentric circles within each circle. At centre of each side of square a small loop, filling spandrel. All device in simple raised lines. Loop at back for cord. $1\frac{1}{2}'' \times 1\frac{1}{4}''$. Pl. CXVI.

**R.R. XI. 015. Chert point,** grey, sand-worn. Pl. CXII.

**R.R. XI. 016. Chalcedony arrow-head,** part of, discoloured by burning. Pl. CXII.

### OBJECTS FOUND AT WATCH-STATION R.R. XII

**R.R. XII. 01. Fr. of alabaster vessel,** white. Part of lip and wall of similar form to 02, but thicker. Ch. 2"; H. 1"; thick. *c.* ⅜".

**R.R. XII. 02. Fr. of alabaster pot,** pale cream; lathe-turned. Bottom flat, sides cylindrical, slightly spreading towards base and spreading at mouth in segmental curve to form everted rim. Inside does not follow outward flow of rim but continues nearly vertical. Top of rim flat. Ch. 2¼"; H. 1 3/16"; thick. ⅛".

**R.R. XII. 03. Fr. of stone jar,** white with wavy grey strata. Form exactly like R.R. XI. 01, but slightly larger diam. Ch. inside 1¾"; H. 1½"; orig. diam. *c.* 4".

**R.R. XII. 04–9. Flint chips.**

**R.R. XII. 010. Fr. of alabaster,** prob. of jar. 1 7/16"×⅞".

**R.R. XII. 037. Iron knife.** Blade gracefully curved; point turned up towards back; thin tang. 4¼"×⅜". Pl. CXVI.

### OBJECTS FOUND AT WATCH-STATION R.R. XIII

**R.R. XIII. 01. Limestone bead,** flat oval; perforated longitudinally. Pl. CXII.

**R.R. XIII. 02. Stone cup.** Green-grey. Flattened globular shape. Diam. 1"; H. 9/16".

**R.R. XIII. 018. Fr. of pottery,** buff; painted with group of three vertical zigzag lines. 2¼"×1¾".

### OBJECTS FOUND AT MOUND R.R. XV

**R.R. XV. 01–22, 26, 28, 30–1. Stone implements,** also chips of jasper, &c. *01*, ribbed blade of brown jasper. *02*, point of brown jasper arrow-head. *03*, arrow-head of green jasper, but imperfect. *05*, part of quartz blade, broad, perhaps used as arrow-head. *07*, jasper chip. *08*, leaf-shaped chert arrow-head, grey and black. *09*, leaf-shaped jasper arrow-head, part of. *011*, jasper chip. *012*, jasper chip. *014*, jasper arrow-head, point of. *015*, jasper chip, with bulb. *017*, quartzite point, roughly chipped. *018*, jasper chip. *019*, chip of chalcedony. *020*, quartz arrow-head, rudely chipped. *021*, arrow-head, pointed oval, of milky quartz. *026*, jasper arrow-head, pointed oval. *028*, chalcedony arrow-head, point missing. Pl. CXII.

**R.R. XV. 023. Fr. of pottery.** Red flake. ⅞"×½".

**R.R. XV. 024–5. Frs. of pottery.** White glaze; blue pattern of Chinese type. *024*, red body. ⅞"×⅞". *025*, white body. ⅝"×⅝".

### OBJECTS FOUND AT WATCH-STATIONS R.R. XVI, XVII, XVIII, XIX

**R.R. XVI. 01. Fr. of pottery from large vessel.** Red body; glazed inside copper green. 3½"×4¾"×⅜".

**R.R. XVII. 01. Fr. of pottery jar,** in two pieces, joined. Buff; pattern painted in brown-black. Between two pairs of annular lines two upright and two parallel horizontal festooned lines. To lower of these a fringe of short strokes. 3¼"×2¼". (Painted portion) Pl. CXIII.

**R.R. XVII. 02–4, 6–8. Frs. of pottery vessels,** painted. *02*, buff. Painted inside a pair of oblique lines and parallel a 'scrabbled' line. 1⅝"×1⅞". *03*, buff. A pair of annular lines and a pair of vertical lines. 1¾"×1⅝". *04*, buff. Inside, a concave-sided oblong with 'scrabbled' line across centre. 2⅞"×2⅝". *06*, buff. Two linked lozenges, cross-hatched. 2"×1¾". *07*, buff. Pair of annular lines and a vertical line. Three vertical zigzag lines near together. 1¾"×1½". *08*, outside covered with very thin grey wash over which pattern in dense black. A broad zone bordered by annular lines and divided vertically by pair of lines. In each division a triangle with bases coinciding with annular border lines. One triangle points up and the other down; both cross-hatched. Outer edges of triangles are toothed, and one of vertical lines. Very fine quality. 2"×2⅝". Pl. CXIII.

**R.R. XVII. 05. Fr. of pottery,** buff. Part of mouth of jar. Lip painted brown-black. Outside, a zone of oblique loops attached alternately to upper and lower border lines. 2¼"×1¼". Pl. CXIII.

**R.R. XVII. 010. Fr. of pottery bowl.** Grey. Foot, simply flattened surface of globe. Fine texture clay. Ch. 2⅝"; H. 1¼".

**R.R. XVII. 011–4, 34. Frs. of alabaster,** from bowls and jars. Gr. fr. (*011*) 1⅞"×1⅜". *034*, miniature conical alabaster cup. Part of side broken away. Diam. 13/16"; H. ⅝".

**R.R. XVII. 016, 20–7. Frs. of pottery,** unpainted; mostly coarse gritty body with buff outer surface. *026*, grey. Green glaze. 3¼"×1⅞".

**R.R. XVII. 017–9. Frs. of bronze.**

**R.R. XVII. 030. Chert point,** grey, sand-worn. Pl. CXII.

**R.R. XVII. 031. Bronze rod,** with thin part in middle, and at one end a notch resembling half eye of needle. 1⅝"×1/16". Pl. CXVI.

**R.R. XVII. 032, 35–7. Frs. of stone, glass, and paste.** *032*, fr. of weather-worn quartz (?). Perhaps originally worked. 1⅜"×1¼". *035*, flint flake. *036*, blue paste bead; short barrel-shaped. *037*, square glass bead, pale grey, with large round hole through it.

**R.R. XVIII. 01. Bronze arrow-head,** triangular, with projecting edges, broken. Length ⅝". Pl. CXVI.

**R.R. XVIII. 02–3, 5. Frs. of pottery,** from wall of vessels, unpainted. *05*, dark brown body, buff slip outside, with bend of annular combing. 1⅝"×1⅞".

**R.R. xviii. 04. Fr. of pottery bowl,** buff. Lip black. Inside painted an oblong lozenge with 'scrabbled' band across middle. 2⅝" × 2¾". Pl. CXIII.

**R.R. xix. 01, 02. Frs. of pottery vessels,** faintly ribbed inside. Slip outside with groups of annular combed lines. *01*, 3⅜" × 1½". *02*, 2¼" × 1½".

## OBJECTS FOUND AT SHAHR-I-SÖKHTA SITE

**S.S. 01, 5–6. Frs. of pottery vessels.** *01*, painted on edge inside, oblique band of three parallel zigzags running downwards and stopping abruptly. 6" × 3¼". Pl. CXIII. *05*, rim painted; pair of annular lines below. To R. vertical band of multiple-line zigzag. To L. vertical undulating band suggesting a wriggling snake. Markings on body of snake cleverly indicated. 5¼" × 4". Pl. CXIV. *06*, painted horizontal band of roughly drawn hatched squares, touching at their horizontal angles. 3¼" × 3¼". Pl. CXIV.

**S.S. 02 + 53. Frs. of pottery vessel.** Terra-cotta. Flattened bulbous shape with short neck curving out to everted rim. Painted in black. Rim, black; line round root of neck. Below, a band of multiple-line zigzag between two border lines. Below, a band of two rows of semicircles, widely spaced. Background of this band hatched in two directions. When such semicircles are opposite and touching, the background forms slightly hollow-sided squares or lozenges as in R.R. iii. 01, ix. 02, &c. Surface abraded. Gr. diam. 6⅝"; H. 2¼". Pl. CXIV.

**S.S. 03. Fr. of pottery bowl.** Hand-made (?) in mould. Hard porcelain-like texture, but is opaque and dark dove-grey. Rim painted black. On outside, a broad, smeary black band, from which rises long zigzag meeting upper band. Within zigzag a solid black triangle rising from lower band. Inside, at bottom of bowl, a large rosette of rough semicircular petals set round a thick circle. Device within circle nearly all missing. Outside surface shows marks of smoothing tool in various directions. Discoloration in places from fire of kiln. Ch. across rim 4¾"; thick. *c.* ⅛". Pl. CXIII.

**S.S. 04. Fr. of pottery vessel.** Buff; painted in brown-black with three parallel vertical lines. On either side are bold elliptical and *D*-shaped scrolls bearing at intervals pairs of short spines. 6¼" × 3¼". Pl. CXIII.

**S.S. 07, 26, 32–3, 63, 70–2, 111. Frs. of vessels,** with linear patterns in black. *063*, ribbed inside. Gr. fr. (*07*) 5⅝".

**S.S. 08. Fr. of pottery bowl,** buff. Rim painted black, and pair of lines within. Roughly drawn double zigzag forms a continuous border. 3½" × 2¼".

**S.S. 09, 14, 39, 48, 54. Frs. of vessels,** painted. *09*, shows square with sides produced; square and outer angles filled solid; on open side of outer angles rough serrations. 3" × 2⅝". Pl. CXIII. *014*, fr. of base of jar; buff; shows end of double-line vertical zigzag. Diam. 3½"; H. 1½". Pl. CXIV. *039*, vertical band of cross-hatched lozenges; pair of vertical lines at one side. 1⅝" × 2". *048*, ornament as S.S. 09. 4⅞" × 2⅝". Pl. CXIII.

*054*, fr. of neck with pair of broad annular lines and zigzag of broad serrated lines. 1½" × 1½".

**S.S. 015. Fr. of pottery bowl;** saucer-shaped. Inside has annular lines with cloud-like rolling line between as border. From this run alternate plain and serrated lines which meet and form a succession of triangles one within the other. Surface seems to have been burnished after painting. Outside shows pleasing engine-turned effect of vibrations of scraper. Simple ring base. 5" × 3½". Pl. CXIII.

**S.S. 016, 19, 21, 23, 25–30, 47, 49, 61, 62, 66, 75, 80, 85, 117–18, 120. Frs. of pottery vessels,** buff. Painted with designs in brown-black, mostly annular bands and zigzags. *026*, Pl. CXIII; *066*, Pl. CXIV. *021*, *085*, show elliptical cartouches containing zigzag lines. Pl. CXIII. Gr. fr. (*021*) 3⅝". *027*, on shoulder, a band of 'flying bat' zigzags; on side a band of four-line zigzag. 2¼" × 1¼". *061*, broad band of multiple-line zigzag between solid broad border lines. 2¼" × 1⅞". *075*, three thick annular lines and band of alternate 'triglyph' and hatched triangle. 2½" × 2". *062*, two vertical lines slightly diverging hatched across, ladder-wise. R. and L. appear parts of tufted curves as on S.S. 04. 2¼" × 1⅞". *030*, kite shapes placed vertically and joining end to end, cross-hatched. 2¼" × 1⅝". *0120*, seems to be a modification of S.S. 09. *025*, *040*, *0114*, curved shapes, hatched.

**S.S. 020, 37, 95. Frs. of pottery bowls,** red. *020*, plain rim leaning inwards and thickened; outside, shows paring marks. 2⅝" × 1¼". *037*, outside vibration marks of scraper. 2⅝" × 1⅞". *095*, inside, softly ribbed; outside, irregular wheel scratches. 1⅞" × 2".

**S.S. 024. Fr. of pottery vessel,** painted. Divided by double line into two zones both containing the same ornament. The design is formed of semicircles described with pairs of lines alternately from upper and lower boundaries of zone. Within are hollow-sided cross-hatched triangles. 4⅛" × 3". Pl. CXIII.

**S.S. 031, 34, 36, 73, 76, 84, 90, 99, 102–4, 106, 109. Frs. of pottery vessels.** Fine texture, grey and thin; majority painted with linear designs in rich black. Gr. fr. (*0104*) 2" × 1½".

**S.S. 050. Fr. of pottery.** Buff; painted outside with band of broad vertical zigzags. 1⅝" × 2¼". Pl. CXIII.

**S.S. 051. Fr. of pottery,** apparently not from vessel. Buff; painted. Between two pairs of lines four rows of parallel zigzags. Outside, traces of scroll similar to S.S. 04. 3⁵⁄₁₆" × 2¼". Pl. CXIII.

**S.S. 055. Fr. of bronze sheet.** Much corroded. 2⅝"; Gr. width 1¼". Pl. CXVI.

**S.S. 057. Fr. of shallow bowl;** buff, greenish buff surface. Sides turned up rather sharply from saucer-shaped lower part. Split and impregnated with salt. Ch. 4⅝"; outside depth 2⅛".

**S.S. 058, 59, 63, 70, 112. Fr. of pottery vessels.** Buff. *057*, few curved incisions on outside. 4½"×2". *059*, flat circular slab with side rising at a steep angle. Both slab and side drilled with holes about ⅜" diam.; purpose uncertain. 3"×1"×1½". *063*, wheel-made. Plain and weathered. 3"×2¼". *0112*, outside surface covered with sludge and greenish buff which has been pushed into irregular ripples (' rusticated ') in successive zones. 2¼".

**S.S. 074. Fr. of pottery;** grey, finely washed clay. Painted outside and inside over thin buff sludgy wash. Lip black. Below, outside, two broad annular lines and a triangle, apex down, sides boldly scalloped and cross-hatching inside triangle (cf. R.R. XVII. 08). Inside, below lip line a pair of annular lines. Between the upper of these and lip line are oblique lines forming irregular triangles in which is vertical hatching. Below, a thin scalloped line. 2¼"×1⅞". Pl. CXIII.

**S.S. 081, 90, 99, 100+106, 101, 102+103, 105, 107–10. Frs. of pottery vessels,** of similar character to S.S. 03, but prob. all wheel-made. Paint varies in blackness. *081*, rim black, broad smeary band extending about ¼" from rim downwards, outside. From this four vertical lines. To R. three ' flying birds '. *090*, inside, vertical band of ' flying bats '. To L. a form suggesting a written char., but prob. accidental. *099*, rim almost flat, painted black; below, outside, a band of smeary lines. *0100+0106*, rim painted black, broader outside than inside. Another thick black line below, outside. *0101*, strongly wheel-marked inside; vertical band of ' bats ' between thick lines. Pl. CXIV. *0102+0103*, similar to S.S. 0110. Remains of black on rim. Wheel-marked. *0105*, rim black, bands on outside with ' flying birds ' between, and vertical lines to L. Pl. CXIV. *0107*, rim painted black and two black bands below, outside. Marks of smoothing tool on outside, in one place rippled as the tool vibrated when pot was on wheel. Pl. CXIII. *0108*, pair of black bands with group of others below. *0109*, rim painted black. Vertical strokes from rim to broad bands below. Outside zigzag in narrow and broad lines touching rim and solid band below. *0110*, on rim black paint carried down in broad band on outside. Below, zigzag, hatched. Paint on all frs. varies in blackness, sometimes dense, at others thin. Gr. fr. (*0107*) ch. 1⅞"; H. 2$\frac{3}{16}$".

**S.S. 089. Carved lignite seal,** black, originally sq. or oblong, broken diagonally, only two corners remaining. Deeply incised on one side with pattern similar in type to key pattern. Other side smoothly polished. Edges rounded. Size ⅞"×⅝"×$\frac{3}{16}$".

**S.S. 091. Bronze peg,** almost sq. in section at one end slightly tapering to a point at other. Much corroded. Length 1⅝", width *c.* ⅜".

**S.S. 0119. Fr. of pottery jar;** grey, burnt red on surface. Outside painted in black with three parallel zigzag lines. Space above upper and below line hatched. Inside plain. Walls thin and body of fine texture. 2"×2". Pl. CXIII.

**S.S. 0121. Pottery jar;** pear-shaped, buff. From broadest part it turns under and downwards to narrow solid stem-foot. Upper part spreads slightly towards mouth (missing). 5¼"×2¾". Pl. CXIV.

## Section IV.—RUINS OF AN ANCIENT BORDER LINE

Discovery of line.

The account given in Section iii of the sites that yielded relics of prehistoric occupation has already taken us over that portion of the southern delta in which I discovered ruined posts marking an ancient defensive line. There is no need, therefore, to preface my survey of their remains by a general description of the area. We may conveniently start this survey from the conspicuous ruin, R.R. IV, the *Burj-i-chākar*, which first attracted my attention to this Limes-like line and which approximately marks the centre of the section stretching north of the debouchure of the Rūd-i-biyābān.

Ruined post of Burj-i-chākar (R.R. IV).

The ruined post, as seen in Figs. 480, 481, is a massive pile still rising to a height of about 25 feet. It forms, as the sketch-plan, Pl. 59, shows, a square, approximately orientated, of about 60 feet outside. Slender towers, now almost completely decayed and probably less than 10 feet in diameter, were added to strengthen the corners. The interior comprised two stories, but the disposition of only the ground floor could be ascertained. This contained three vaulted chambers, 31 feet long, the one in the centre being about 14 feet wide and the flanking ones 10' 4". Access to them lay from three smaller rooms along the southern face through which the gate led. But the dividing walls were too much broken here to permit of exact measurement. Guided by the arrange-

ment clearly observed in the ruin R.R. v, which shows a closely similar ground-plan, it was possible to trace in the SE. corner indications of stairs leading to the upper story. The interior walls vary in thickness from 3 to 4 feet, while the enclosing walls have one of fully 7 feet. The vaulted chambers of the ground floor had each a narrow loophole to the north. Elsewhere, except for the gate, the enclosing walls were solid, a clear sign of the defensive character of the structure. The upper story rooms appear to have been provided with windows, as suggested by Fig. 481, and probably served as quarters, while those below are more likely to have been used for stores, &c.

Constructive features.

Such remains as there were of vaulting in the halls and smaller rooms of the ground floor showed voussoirs of the same type as observed at Ghāgha-shahr, with curved bricks of great size set on their long edge. One measured 28″×7″×2″. The sun-dried bricks used throughout the structure were large, measuring on the average 24″×13″×4″. In the enclosing walls, up to a height of about 13 feet from the ground, they were laid in a fashion different from that adopted in any of the ruins previously described; the bricks were set on edge, with the narrower edge facing outwards. It was of interest to note that here, and also at other posts along the line, the large well-made bricks contained plenty of straw, apparently of wheat. This showed that cultivated ground was probably not very far away, wherever the bricks may actually have been made. The system of vaulting and the size of the bricks clearly indicated that the structure was of considerable antiquity, and the plan, together with the great solidity of the walls, left no doubt as to its defensive purpose. The same explains also the presence of a small outer walled enclosure traceable on the south where the gate lay. As seen in Fig. 480, it had decayed too badly for exact measurement. As already noted, the ruin rises on a low swelling of the ground. The protection afforded by the gravel which covers the surface makes it easy to understand why, in spite of the great age of the ruin, wind-erosion has undercut the ground at its foot nowhere by more than 2 or 3 feet.

Ruined station R.R. v.

The ruin R.R. v (Fig. 479) is situated about 3 miles N. of the Burj-i-chākar and by the side of the same late canal that passes the latter post and runs on towards Hauzdār and Machī. The ruin shows a very close resemblance to R.R. iv in all constructive features. For this reason its description may be given here, even though it does not occupy a place in the defensive line proper but lies about a mile and a half behind its nearest post, R.R. xvii. As construction and position show, it evidently formed part of the same system and may well have been intended to provide additional protection for a main route where it passed through the line. As seen from the sketch-plan in Pl. 59, the structural arrangements are practically the same as in R.R. iv, though the dimensions are somewhat smaller. The building measures 48 feet square outside, and is strengthened at its four corners by round towers now much decayed. The enclosing walls are about 4 feet thick. Here, too, there was an upper story and probably a main gate leading through the south face. But in addition a kind of postern opened into the room at the SE. corner, where the remains of a winding staircase leading to the upper story were still clearly traceable. Of this story very little remained, and the rooms below were all deeply buried in debris, except in the corner named. The bricks, very hard and showing little or no straw, are about 25″×13″×4½″ in size, closely approximating to those observed at Ākhur-i-Rustam.[1] Fragments of prehistoric pottery were found embedded in the bricks, which suggests that the latter were made at or near the low debris-strewn terrace occupied by the ruin. Up to a height of about 7 feet they are set on edge, just as at R.R. iv, and above that in horizontal courses. The ruin still stands to a height of about 21 feet and shows but little effect of wind-erosion at its foot.

Remains at watch-station R.R. xvii.

From R.R. v we may now return to the line along which the succession of ruined watch-posts was traced. Taking first that portion of the line which stretches NW. towards the edge of

[1] See above, ii. p. 945.

the Hāmūn, we come at a distance of about 1¾ miles from R.R. IV upon remains of what evidently was a defensible station of importance, R.R. XVII.[2] They occupy a low gravel-covered plateau and comprise a badly decayed post (Fig. 485) measuring approximately 60 feet square, marked *A* in the sketch-plan, Pl. 59; ruined quarters, *B*, outside its SE. corner, and a large walled enclosure of quadrangular shape, all these approximately orientated. The interior of the post was found so deeply filled with debris that the walls dividing the several rooms could be traced only with difficulty and in parts. But there could be no doubt that the general disposition was the same as in the ruins already described, except that there appear to have been four long vaulted chambers on the ground floor instead of the usual three. The outer wall had a thickness of 5 feet, and the entrance passed through its south face. The bricks were of a large size, approximating to those found in the ruined quarters outside, about 20″×12″×4″. That there had been an upper story is certain. The shapeless masonry still rose at the SE. corner about 14 feet above the sloping ground outside, and subsequent clearing showed that accumulated debris and sand covered the original ground level near the entrance to a height of over 9 feet.

Walled enclosures outside post R.R. XVII.

When first examining R.R. XVII on December 27, 1915, my attention was attracted by straight lines of whitish clay showing above the greyish gravel that covered the ground to the south. Close inspection soon revealed that they marked the top of the low mounds into which walls enclosing a large area to the south and a smaller one to the north of the post had decayed. Excavation in a few places showed that these walls, which wind-erosion together with occasional rain had caused to crumble away, had an original thickness of about 4 feet. To the south the enclosed area measured about 596 feet by 536, the northern wall passing close to the quarters, *B*, outside the post. The other oblong enclosure north of this had the same dimension from east to west, but measured only about 202 feet across, as seen in the sketch-plan, Pl. 59. A wall about 5 feet thick was shown by subsequent excavation to connect the wall dividing the two enclosures with the western face of the post. Together with the block of quarters traced near the SE. corner of the latter, it evidently served to form a kind of outer court, *C*, before the entrance of it. Within the SW. corner of the northern enclosure I traced on the surface indications of walls, and subsequent excavation proved this corner to have been occupied by a small room, *D*, measuring 12 by 14 feet. As an entrance to it could be clearly made out both to the north and east, it was probably meant to shelter men guarding these faces of the smaller enclosure.

Clearing made outside post.

The large walled enclosures outside the ruin R.R. XVII and the presence of quarters by its side seemed obvious indications that this had been a station of special importance on the defensive line. So I returned to it a month later, before my departure from Sīstān, with a number of labourers for the purpose of some brief trial excavations. Within the post, *A*, work proved difficult owing to the masses of hard consolidated debris of masonry filling the interior. But in addition to part of the easternmost vaulted chamber, enough was cleared of the south wall to prove that the entrance lay through the middle of it. By a trench opened outside this the foot of the wall was disclosed at a depth of over 9 feet. The top layer consisted of hard clay, the debris of fallen masonry. But in the fine sand below this, which had accumulated on the lee side of the building, we struck, as I had expected, a layer of refuse outside the entrance. It could easily be distinguished by colour and smell. But apart from rotten fragments of woollen fabrics the contents had all decayed. Here and elsewhere at these watch-stations it was unfortunately only too evident that there was little hope of recovering datable records such as the Tun-huang Limes had yielded from unprotected

[2] The order in which the several ruined watch-stations and mounds with prehistoric relics were numbered, R.R. IV, R.R. V, &c., is that of their successive discovery in the course of my exploration of this region and does not coincide with their relative positions on the map.

refuse heaps. Sīstān, with its fairly regular rainfall of about 2 inches per annum, arid enough as it looks everywhere, does not enjoy a climate quite sufficiently 'desiccated' to preserve relics of this kind for the advantage of archaeological research.[3]

Excavation in quarters outside R.R. xvii.

The block of quarters, *B*, could be traced close to the SE. corner of the post, over an area of about 110 feet by 55, the top of the surviving portion of the wall lying flush with the gravel surface of the sloping ground. Excavation of the north-western area where this surface was highest (Fig. 487) showed that loose sand had accumulated within and had preserved the remnants of walls, about 5 feet high, from being abraded and carried off by the wind until a layer of gravel had formed above and stopped further erosion. Evidently the quarters had been completely emptied by their last occupants on or after abandonment. In room i (Pl. 59) were found two small sitting platforms, and by the side of one a fireplace, with the bottom of a large bowl set in hardened clay. The adjoining room, ii, measuring 27 feet by 14½, also contained a sitting or sleeping platform, built of brickwork, 6′ 3″ by 2′ 8″, and two fireplaces. The one placed in a recess of the southern wall, *a* (Fig. 487), was of interest. It was provided with a pottery jar, about 10″ wide, set in clay to serve as an oven for baking unleavened bread or 'Chapātis', after a fashion still known locally and in India. A similar but larger oven in the NE. corner, *b*, was found broken. The only finds made in clearing these two rooms consisted of fragments of plain coarse pottery, a few small fragments of bronze (R.R. xvii. 017–9), and some sheep bones. The potsherds were of the same ill-levigated red or whitish clay which occurred along and within the walls of the enclosures of R.R. xvii and also among the debris of other ruined posts or outside them.

Position chosen for a *castrum*.

The large walled enclosures found at R.R. xvii suggest that this point of the defensive line had been used, when occasion arose, as a kind of *castrum* or sectional head-quarters, just like similar enclosures traced far away to the east on the ancient Chinese Limes.[4] It is hence of interest to note that just near this point we find at R.R. v a post withdrawn behind the line as if intended for support, the only one traceable in such a position. The distance between the two ruins is 1½ miles, a little less than that from R.R. xvii to R.R. iv. Reference to the map will show that the line marked by ruined posts juts out to the west at the latter point. This at first made me think that there had possibly been a link on the direct line between R.R. xvii and R.R. xii, the post nearest to R.R. iv south-eastwards. But close search revealed no ruin in this direction. What reason there may have been for the salient of the line formed by R.R. iv it is not now possible to discover. But it deserves to be mentioned that R.R. iv occupies a position commanding a particularly wide view, extending as far as Kundar and Ākhur-i-Rustam to the NW. and the ruined station R.R. xiii to the SE. In general it is certain that optical signalling must have been quite easy all along the line from the present Perso-Afghān border to the edge of the Hāmūn.

Ruined posts R.R. xvi, xviii.

Proceeding to the NE. the line of posts is continued by R.R. xvi, a post of similar size and type as R.R. iv but badly decayed. The arrangement of three long chambers within, aligned from north to south, could still be made out. The sun-dried bricks laid bare on the top were full of straw and measured 22–24″ × 12″ × 4″. Fragments of prehistoric pottery, of which there was an abundance on the ground, were also embedded in the brickwork. The fragment of green-glazed ware R.R. xvi. 01, found close to the ruin, probably dates from the time of its occupation. Continuing another 1½ miles to the NW. we reached the ruined post R.R. xviii, badly decayed and somewhat smaller in size than those just described, but closely corresponding to them in type of construction. The three vaulted chambers of the ground floor, the entrance from the south with two small flanking

[3] During my stay at this ruin, Jan. 28–9, 1916, there fell enough rain to fill the flat hollows of ground or *nāwars* all over the desert plain with shallow sheets of water, as seen in the distance in the photograph, Fig. 487. This removed all trouble about the supply of water.

[4] Cf. for T. iv. a–c, T. xiv, *Serindia*, ii. pp. 637 sq., 688 sqq.

rooms as in R.R. v, and remains of slender towers at the corners, could still be made out. The eastern wall showed a facing of bricks set on edge as in R.R. iv, v, their size, 24–25"×12–13"×4", being also the same. The outer walls are apparently 4 feet thick and still rise to about 12 feet. Among the debris at the foot of the western wall we picked up the broken triangular arrow-head R.R. xviii. 01 (Pl. CXVI), resembling in shape specimens found in the Lop Desert.[5]

Line traced to post R.R. xix.

From R.R. xviii no further ruin could be sighted to the NW. But after proceeding in that direction towards low scattered terraces south of Kundar and crossing the caravan track, we came upon the ruined mound R.R. xix, situated at a direct distance of 3 miles from R.R. xviii. It could be clearly recognized as marking the remains of a watch-post of the regular type, probably of the smaller size, like R.R. v. It still rises about 12 feet above the level ground at its SE. corner and in its lower part shows courses of large bricks set on edge, similar to those found in the ruins previously described. As we are here approaching the area subject to annual inundation from the Hāmūn, the soil is increasingly affected by salt efflorescence. Hence if there ever was a post nearer to its edge its remains would probably have suffered even more from moisture. No such ruin could be seen in the direction of the Hāmūn, only two modern-looking sepulchral domes near the well of Chāh-i-Rigāwak. So our search was not extended beyond R.R. xix. This, however, suffices to show that the line of defensible stations rested its western flank on the marshes of the Hāmūn, whether R.R. xix actually was the very last on that side or not. On the other hand, in view of its distance from R.R. xviii, there is good reason to believe that on our progress from R.R. xviii, necessarily somewhat circuitous with no definite landmark to guide us, we missed the position of a probable intermediate station. From R.R. xix a small mound was indeed sighted in line with R.R. xviii; but the necessity of finding our way, before darkness set in, to the camp which had been sent ahead to the Asik well beyond Hauzdār, prevented an examination of it. I was unable to visit it subsequently as I had intended, for my route on my return to the southern delta a month later took me too far eastwards.

Likelihood of an intermediate post.

Position of R.R. iv. a.

We may now turn back in order to follow up the line of watch-stations where it continues to the SE. of R.R. iv. Going a little over half a mile ESE. of this ruin I reached the site of another post, R.R. iv. a, decayed into an almost shapeless mound. The lines of the outer walls, still traceable in places, seem to form a square of approximately 64 feet. Dips running from N. to S. on the top of the mound mark the place which the vaults of the ground floor had occupied before falling in. Also the position of the entrance on the south could thus be made out. Fragments of coarse undecorated pottery, not of the chalcolithic type but of a kind found also at other watch-stations, abound on and around the mound. R.R. iv. a lies close to the right bank of the same old canal bed which farther down passes R.R. iv. Is it possible that the two posts were placed close together in order to provide additional facilities for watching masked ground?

Ruined posts R.R. xii, xii. a, xiii.

About 1¼ miles to the east rises the ruin R.R. xii (Fig. 492), already referred to as occupying the top of a terrace strewn with the debris of prehistoric pottery. Owing to far-advanced decay the dimensions indicated in the sketch-plan, Pl. 59, could only be roughly determined. The structure was certainly of the usual pattern with three vaulted chambers below, but its size, about 43 feet by 40 outside, was smaller than that of R.R. iv. The photograph in Fig. 492 shows the ogival vaulting of one chamber and on the right the position of the entrance. The next post, R.R. xii. a, slightly more than one mile to SSE., is in a still more ruined state, the remains rising to only about 6 or 7 feet above the ground. It was evidently of a smaller size like the preceding post. The larger type, about 64 feet square, is met with again in the post R.R. xiii, situated about 1¼ miles

[5] See above, i. p. 279; C. xcvi. 013, 16, &c., Pl. XXIII.

off in an almost southerly direction. This ruin, too, has suffered much; but the outer wall to the south still stands to about 10 feet in height.

Plan of ruined station R.R. xiv.

The ruined station R.R. xiv, half a mile to the SW., showed a ground plan (Pl. 59) somewhat larger than the rest and differing in the internal arrangement. The interior has suffered through a drainage channel which has formed in the centre. The outside dimensions of the enclosing walls are about 77 feet by 54. They are strengthened by small towers at the four corners, all badly decayed, and a fifth projecting on the eastern face. There seems in addition to have been some kind of projection on the south, perhaps intended to protect the entrance on that side. A second entrance with a pointed arch is recognizable near the SE. corner and probably gave access to a staircase. Similar vaulting survives over part of the central room on the north, having a span of close on 15 feet. The masonry exposed on the east and south faces shows bricks about 24" × 13" × 4", set on edge with the longer side upwards. They contain much straw. The eastern face still rises to a height of over 15 feet. Shepherds visiting the neighbourhood during the few weeks of spring vegetation have used the shelter of the ruin, as proved by the droppings of their flock, and this accounts for the glazed potsherds of recent appearance that I noted there. A small structure, about ½ mile to the ESE., built of stamped clay and comprising three rooms, appeared also to be of late origin; it may date from the last period when land near the debouchure of the Rūd-i-biyābān is known to have been cultivated.

Room cleared in post R.R. xx.

The ruin R.R. xx, less than 1½ miles due south, is that of a post of the smaller size, measuring 45 feet by 42 outside and showing the typical arrangement of vaulted chambers inside, as seen in the sketch-plan, Pl. 59. It is situated above the right bank of a wide scrub-filled depression. This comes from the debouchure of the Rūd-i-biyābān and contains the canal which until a century ago carried water to Machī and Hauzdār, as already noticed at R.R. iv, v. The room, i, to the left of the entrance was less heavily filled with debris from fallen walls than the rest, and this I was able to get cleared during the two days' halt that we made by the side of another old canal-bed, not far from the Muhammadan sepulchral domes which the map marks as Yak-gumbaz. The clearing of room i brought to light a sitting platform running round three sides (see Fig. 493 and detailed plan, Pl. 59), and underneath it a hypocaustic passage obviously intended for the warming of this room. At the openings, *A*, *B*, of this towards the entrance the plaster was found calcined. The whole strikingly recalled the *k'ang* arrangement in Chinese houses. The floor of the room lined with bricks, 16" × 15", was raised 2 feet above that of the entrance passage, and the sitting platform another 1' 10". The little recess in the raised masonry bench above the opening *A* may have been intended for the heating of vessels containing water or some similar purpose. Some lumps of clay, each about 2½" high and of pyramidal shape, were found inside this hypocaust opening and were, perhaps, meant to be fired and then to serve as loom-weights.

Search for remains near debouchure of dry river.

On the other side of the wide bed and about 400 yards to the WSW. of R.R. xx we discovered the badly decayed remains of another post of the same type. The southern face, which was the easiest to trace, measured about 40 feet and showed bricks of the regular size, 24" × 12" × 4". The structure had obviously suffered through moisture. The line of posts that we had succeeded in following so far led from R.R. xii onwards more or less due south, and naturally it was in that direction that I searched for its continuation. But here at R.R. xxi, where we had struck the northern limit of the still recognizable delta of the Rūd-i-biyābān, it seemed to come to an end. So far one ruin sighted from the other had afforded easy guidance. The careful reconnaissance I made from this last point to the south took me in succession across four old river-beds, all branching from near the point where our camp stood, close to the pillar-marked Perso-Afghān boundary. But though the low gravel-covered plateaus separating these dry river branches were perfectly

open and the atmosphere after rain was of rare clearness, we failed to discover any ancient remains, whether ruined structures or marks of prehistoric occupation, for fully five miles. A small ruin passed in the second bed from the north was clearly shown by its bricks, 12″ × 12″ × 2″, and the glazed potsherds near it to belong to late Muhammadan times, like the domes of Yak-gumbaz and the Muhammadan graveyards to the south-west and north of it.

Towers R.R. xxii–xxiv S. of Rūd-i-biyābān.

But when the fourth and last of the river-beds, known as the Hadālī outlet, had been passed, we very soon sighted again a line of ruined posts extending from boundary pillar 16, as marked on the map, to the ESE. The first, R.R. xxii, lay just across the boundary in Afghān territory, and into this I did not hesitate to commit here a short trespass. The ruin was badly decayed, but the rough measurement still possible showed that like the next two it was that of a massively built small post or tower, of the same size and type as R.R. xxv to be described presently. Like the other posts farther on it was built on a wind-eroded terrace on which relics of the chalcolithic period could be seen. Only a quarter of a mile off rose a somewhat better preserved post, R.R. xxiii; here courses of bricks set on edge and measuring 24″ × 12″ × 4″, like those in the stations on the north-western portion of the line, were clearly recognizable. R.R. xxiv, about ½ mile beyond, was again badly decayed; but the ruin xxv (Fig. 502), which we reached after proceeding another half-mile, fortunately revealed its plan and construction quite clearly (Pl. 59).

Construction of tower R.R. xxv.

It still rose to over 10 feet and retained its vaulted entrance on the south. Within walls 6 feet thick on three sides and 9 feet on the fourth, there was a single chamber, 16 feet by 8½. The bricks, well made and full of wheat straw, which formed the vaulting both over it and the entrance, measured 42″ × 6″ and were set on their longer edge. The additional thickness of the west wall was needed to leave room for stairs 3 feet wide leading to an upper story. The features of this remarkably massive little structure left no possible doubt that it was meant for a watch-tower capable of defence, and its erection on the top of an erosion terrace fully agreed with this.

Continuation of line towards Gaud-i-Zirrah.

The line of towers could be seen to have its continuation to the SE. along similar detached terraces. But the evidence already obtained here as to its character was so clear that I did not consider myself justified in farther extending my trespass on Afghān territory, against which I had been warned. The direction of the defensive line thus traced definitely pointed to its having lain towards the western extremity of the Gaud-i-Zirrah. There its flank could rest quite safely, like the north-western section, where, as we have seen, it touched the edge of the Hāmūn. For the break which appears to occur in it just along the stretch where the Rūd-i-biyābān debouches in several outlets, it is difficult to offer any conclusive explanation. It is possible, even likely, that the beds here have greatly shifted during historical times and considerably changed the aspect of the ground. But the possibility should also be kept in view that cultivation, of which there is here definite evidence in comparatively modern times, may well have helped to efface earlier remains.

Approx. dating of defensive line.

Taking general stock of the observations made along the whole chain of watch-posts that I had been able rapidly to survey, it may be confidently asserted that it dates back well before Muhammadan times. This is proved by all constructive features, the great size of the bricks, and the absence of glazed pottery remains. These posts, built, as it were, 'to specification', clearly point by their uniform plan to a contemporary origin. How far back this lies only systematic excavation of a number of them might be expected to show. Impressions derived from comparison with other ruined structures examined by me in Sīstān, together with quasi-historical considerations, incline me to look to the early centuries of our era as a possible approximate dating. A protective chain of watch-stations is not likely to have been needed during periods when efficient rule prevailed over the whole of Īrān, including Khorāsān, as it certainly did during the greater portion of the Sasanian period.



494. GATE OF RUINED FORT VILLAGE, RĀMRŪD, SEEN FROM WITHIN.



495. MAIN STRUCTURE OF KALA-I-TĪMŪR, SEEN FROM NORTH-WEST.



496. RUIN OF MANSION AT BURJ-I-AFGHĀN, SEEN FROM SOUTH.



497. RUIN OF FORTIFIED MANSION AT BĪBĪ-DŌST, SEEN FROM WEST.



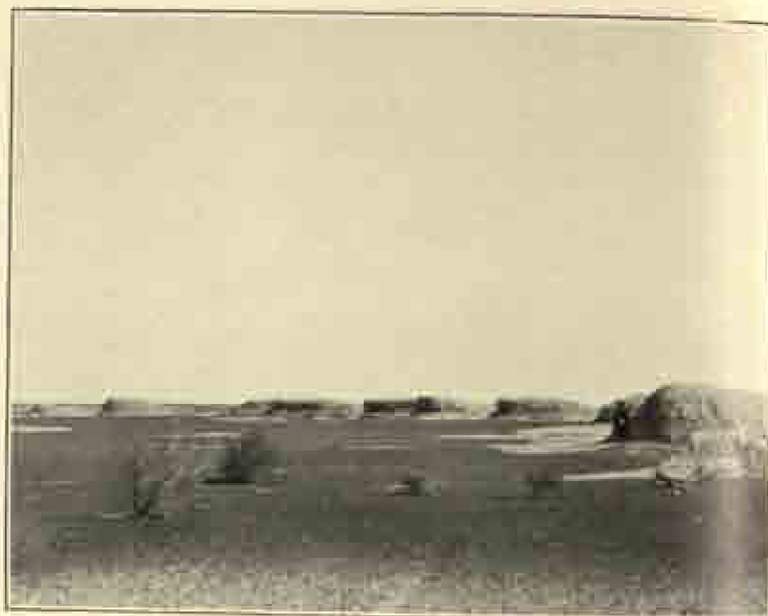
498. RUIN OF WINDMILL (CHIGINI) NEAR MACHĪ.



499. AIWĀN IN RUIN OF FORTIFIED MANSION, MACHĪ.



500. WIND-ERODED MOUND, R.R. VII, FIND-PLACE OF PREHISTORIC POTTERY, ETC.



501. WIND-ERODED TERRACES, SALT-ENCRUSTED, NEAR RĀMRŪD, SEEN FROM SOUTH-SOUTH-EAST.



502. RUINED WATCH-POST, R.R. XXV, SEEN FROM SOUTH.



503. WIND-ERODED RIDGES AND TRENCHES WEST OF RĀMRŪD.



504. RUIN OF DOMED TOMB ON WIND-ERODED TERRACE NEAR KALĀT-I-GIRD.



505. MODERN WATCH-POST AT KARŪDAK, ON NUSHKI-SĪSTĀN TRADE ROUTE

A border line of this character can obviously not have been meant to ward off attack by organized forces, but only to protect the cultivated portion of the Helmand delta against nomadic raiders. In view of the geographical facts there can be no doubt that this Limes faced to the south. The region of barren hills that extends there must already in ancient times have been occupied by nomadic tribes corresponding in character and habits, if not also in race, to the Balūch and Brahui tribes to be found there at present. The latter have maintained their reputation as very troublesome neighbours of the settled population in Sīstān to the present day. Those in the *Sarhad* (' the border ') hills of Persian Balūchistān, due south of Sīstān, have often enough defied the Shāh's troops or those of his great feudatory, the chief of Birjand, acting as lord of these Marches, when attempts have been made to reduce them into effective subjection.[8]

Purpose of border line.

In the absence of more definite evidence as to the date of construction of this defensive border line, it would serve no useful purpose to discuss here questions as to the ethnic and political conditions which are likely to have prevailed in and around Sīstān in Parthian or Sasanian times and may have had their bearing on the policy indicated by this protected border. Still less should we be justified in drawing from it conjectural conclusions as to the position and extent of that portion of the Helmand delta which may then have been under cultivation. Nor is there occasion to make more than the briefest reference to the curious analogies presented to the ancient Chinese Limes which I had traced along the Kan-su border far away in the east, and to the Roman Limes systems in the west. But I may hint at least at an interesting antiquarian question. Could this protected desert border of Sīstān be thought of as forming a geographical link between that ancient ' Chinese wall ', pushed out into the Tun-huang desert along the early Central-Asian high road, and the Limes lines by which Imperial Rome endeavoured in Arabia, Syria, and elsewhere in the Near East to facilitate the defence of its marches against barbarian inroads? Future research may possibly help us to an answer.

Analogies to Limes lines of China and Near East.

## Section V.—FROM SĪSTĀN TO INDIA AND LONDON

I should have gladly faced the physical discomforts which, with the approach of spring, would necessarily attend continued work on desert ground in Sīstān, if it had been possible for me to extend my survey to the Afghān portion of the areas now abandoned to the desert. Sir Henry McMahon's Mission and earlier travellers had found in that region important ruined sites, still awaiting close investigation. Permission to visit it could, however, not be secured for me, and considering the conditions created by the war I did not feel altogether surprised at this. So after completing my survey of the ancient border line on the Persian side of the old southern delta, I set out at the beginning of February on my return journey to India.

Start for return to India.

After striking the westernmost outpost of British Balūchistān at Kōh-i-Malik Siāh, I travelled by the ' Sīstān Trade Route ', which the zeal of Captain (now Colonel) F. Webb Ware, of the Indian Political Department, had first pioneered through the desert some thirty years before. Well known as the route is, I found a special quasi-historical interest in this journey of close on 400 miles through desert wastes—for the ' Chagai Agency ' comprising them extends over more than five degrees of longitude but includes a population numbering only about 5,000, practically all nomads. I could not have wished for a better modern illustration of the conditions of traffic that once prevailed on that early Chinese route through the Lop Desert which two years previously I had succeeded

The ' Sīstān Trade Route '.

[8] The Sarhadī Balūch did not forgo the opportunity offered by the war of proving their ancient propensities by raids into neighbouring tracts of British Balūchistān and marauding exploits on the Sīstān–Nushkī route, and that in spite of the posts held by Indian detachments as far as Robāt Thāna, on the southernmost border of Sīstān.

in tracking through waterless wastes after sixteen centuries of abandonment. The history of this 'Sīstān Trade Route' supplies a very apt modern parallel in other respects also to that ancient desert route. Like the latter it had been planned for the expansion of trade, but events in due course were now bringing about its use for political purposes and military operations.

Comparison with Lop Desert route.

It is true that wells of tolerably fresh water at most of the stages, comfortable Government rest-houses at all, and good camel grazing at half a dozen of the stages, made the journey along this modern desert track, by fifteen forced marches on riding camels, seem child's play compared with the hardships faced in tracing the ancient Chinese highway from Lou-lan eastwards. In ancient times, moreover, the physical difficulties successfully overcome by the early Chinese pioneers must have been vastly greater than any that this route from Nushkī to Sīstān ever presented in the days before its improvement. But in the utterly barren foot-hills that we skirted, in the long stretches of gravel 'Sai' or dune-covered ground that we crossed, in the desolate small posts (Fig. 505) that we encountered—in all these there was much to suggest the scenes that must have met the eyes of those ancient wayfarers while making their weary progress through the Lop Desert past the foot of the 'Dry Mountains'. Even the great 'Salt Marsh' was recalled by glimpses of the salt-fringed sheet of the Gaud-i-Zirrah as I saw it glittering far away in the distance. At the same time the sight of the many hundreds of dead camels which the convoys of military stores, &c., moving from the Nushkī railhead to Sīstān for months past, had left behind on their trail, poignantly brought home to me once more the vast amount of suffering which that far more difficult route from Tun-huang to Lou-lan must have witnessed during the centuries of its use by the caravans and military expeditions of Han times. It is a comfort to know that the construction about the year 1918 of the railway from Nushkī to Duzdāb to meet military requirements put an end to these heavy sacrifices.

Arrival at Quetta.

On February 21st I reached Nushkī, whence the railway carried me first to Quetta and subsequently to Sibi, the cold weather head-quarters of Sir John Ramsay, then Governor-General's Agent and Chief Commissioner, Balūchistān. At Quetta I had an opportunity of examining at the local museum the very interesting and well-arranged collection of antiquities from Sīstān which had been brought back by Sir Henry McMahon's Mission and which would well deserve separate description. At Sibi I had a welcome opportunity of personally expressing to Sir John Ramsay, an old friend, my gratitude for the very helpful arrangements by which my journey from Sīstān had been expedited, and also of reporting to him what I had observed of the heavy strain involved by the conditions of camel transport then prevailing on that desert route.

Visits to Delhi, Dehra Dun, Lahore.

During the week's stay at Delhi that followed I received fresh proof of the kind personal interest with which His Excellency the Viceroy, Lord Hardinge, had from the start followed and encouraged my enterprise, an interest which I shall always remember with sincere gratitude. There, too, at India's new capital I was able to meet again two of my oldest friends in India, Sir Edward Maclagan, then Secretary to the Government of India in the Education Department, and Mr. (now Sir) Malcolm Hailey, then Chief Commissioner of Delhi; both had at all times been ready to accord all the official support they could give to my Central-Asian explorations. A subsequent brief stay at Dehra Dun, the head-quarters of the Trigonometrical (now Geodetic) Branch of the Survey of India, enabled me to secure the willing help of Colonel Sir Sidney Burrard, then Surveyor-General of India, and of Colonel (now Sir) Gerald Lenox-Conyngham towards the suitable publication of the topographical results brought back from all my three expeditions, in the form of the atlas of maps which accompanies the present publication. At the same time I obtained the admission of Afrāz-gul Khān to the service of the Survey Department under conditions opening up to this capable young assistant prospects of a good career, of which he has since proved himself fully worthy.

While paying a short visit on my way through Lahore to Sir Michael O'Dwyer, then Lieutenant-Governor of the Punjab, I had the great satisfaction of learning from this kind old friend that the splendid services which my old surveying companion Rai Bahādur Lāl Singh had during a lifetime rendered to Government were to be recognized by a 'Jāgīr' or grant of land. It was a reward I had always wished to secure for him ever since my journeys had acquainted me with his indefatigable zeal and energy.

Finally, after the middle of March, I reached Kashmīr, which had been the base for all my Central-Asian expeditions and from which that now concluded had started close on two years and eight months before. There at Srinagar the 182 cases of my collection of antiquities from Chinese territory had safely arrived by the previous October. It was no small satisfaction to me that with the sanction of the Indian Government I was able to entrust the arrangement and detailed examination of the collection to the expert care of my old friend Mr. F. H. Andrews, who since acting as my valued collaborator at the British Museum had been appointed Principal of the Technical Institute of the Kashmīr State. Mr. Andrews had been closely associated with all the work on the collections of antiques resulting from my first two expeditions. It was all the more fortunate that I could now leave the latest collection also in his experienced charge, and at a place climatically so favourable to the preservation of ancient relics, because war risks would have made its temporary transmission to London, as originally contemplated, a very unwise course. Collection deposited at Srinagar.

Instead I decided to transfer only myself across the seas in order to employ a stay in England on the preparation of a preliminary record of the work achieved and on the completion of the heavy work resulting from my second journey which I had been obliged to leave unfinished when setting out for the third. I returned to England, after two years of the greatest struggle which the history of mankind has known, prepared for great changes. But fortunately they were not allowed to affect my labours. The helpful interest shown in my scientific efforts by the Indian Government and by scholar friends continued throughout unabated, and in the very kind welcome accorded to me, on my first arrival in London, by Mr. (now Sir) Austen Chamberlain, then H.M.'s Secretary of State for India, I found a source of encouragement which has been remembered by me with deep gratitude throughout the labours now concluded. Return to England.

FINIS.

# APPENDIX A

# CHINESE SEPULCHRAL INSCRIPTIONS

## FROM ASTĀNA, TURFĀN

TRANSLATED AND ANNOTATED

BY

HENRI MASPERO

PROFESSEUR AU COLLÈGE DE FRANCE

### No. 1.

### Ast. 09.

(Planche LXXV.)

Stèle de la tombe de Wang Yuan-tche 王元祉, conseiller militaire *tseu-yi ts'an-kiun* 諮議參軍, transféré *sseu-ma* au Ministère de la Population *Min-pou sseu-ma* 民部司馬, à qui a été conféré le titre posthume de Président de Ministère, *tchang-che* 長史[1], élevée le 8ᵉ jour, *yi-mao*, du 3ᵉ mois dont le 1ᵉʳ jour est *meou-chen*, de la 11ᵉ année *yen-tch'ang* 延昌 qui est *sin-mao* (17 avril 571 p. C.)[2].

### No. 2.

### Ast. i. 6. 08.

(Planche LXXV.)

Feu[3] le *che-[lang]* Tchang 張 de [Touen-]houang de son nom personnel [et de son surnom][4] Sin-[ . . ] 新〇.

[1] D'après le *Tcheou chou* 周書, k. 50, 4 a, l'administration centrale du royaume de Kao-tch'ang 高昌 au VIᵉ siècle se composait d'un 'Chef des Commandements' *ling-yin* 令尹 qui répondait au premier ministre chinois (c'est évidemment ce personnage qui reçoit le titre équivalent de *Chang-tchou-kouo* 上柱國 dans le document no. 4); au-dessous il y avait les 8 ministères: le ministère des Fonctionnaires *Li pou* 吏部, le ministère des Sacrifices *Sseu pou* 栒部, le Ministère du Trésor *K'ou pou* 庫部, le ministère des Greniers *Ts'ang pou* 倉部, le ministère des Réceptions des Hôtes *Tchou-k'ou pou* 主客部 (c'est à dire des relations avec tous les pays étrangers autres que la Chine), le ministère des Rites *Li pou* 禮部, le ministère de la Population *Min-pou* 民部, et le ministère de la Guerre *P'ing pou* 兵部; à la tête de chacun d'eux était un président *tchang-che* 長史 avec un vice président *sseu-ma* 司馬 et toute une administration de secrétaires, *che-lang* 侍郎, *hiao-lang* 校郎, *tchou-p'o* 主簿, etc.; les maréchaux de la garde de gauche et de droite 五大衛大將軍 prenaient rang au-dessous du premier ministre, mais au-dessus des présidents des Ministères; il y avait aussi 5 généraux *tsiang-kiun* 將軍 de rang inférieur aux présidents de ministère, mais leurs titres tels que les donne le *Tcheou chou* n'apparaissent pas dans les inscriptions et les manuscrits.

[2] *yen-tch'ang*, date en ère locale non chinoise, voir *Chronologie*.

[3] Le 1ᵉʳ caractère est 古, ici comme dans le no. 4; je le prends dans le sens de 故 = défunt.

[4] J'ai restitué cette formule d'après le no. 4 (voir note 21); 諱 est lisible, mais 字 est effacé; il me paraît impossible de lire le dernier caractère 張 Tchang, comme dans le calque, mais je ne puis le déchiffrer sur la photographie.

Le che-lang, qui a reçu le titre posthume de Conseiller militaire *tseu-yi ts'an-kiun*, avait des sentiments humains, et il était ferme dans la justice; son caractère était sérieux, affable, vénérable; du matin au soir il s'occupait des affaires publiques; il n'a jamais manqué au devoir de fidélité et d'intégrité; parfaitement et complètement il servit l'état; il n'a jamais abandonné le sentiment de zèle et de révérence. Il aurait dû étendre au loin le compte (de ses années)[5] afin de vaquer aux affaires du royaume; comment a-t-il eu la malechance, et a-t-il rencontré le malheur[6]? A l'âge de soixante-treize ans, la 9e année *yen-cheou* 延壽 (632), au 5e mois dont le 1er jour est *kia-yin*, le 2e jour qui est *yi-mao*, il a fait que les six degrés de parenté furent émus de douleur, et les neuf parentés éloignées furent remplies de regrets. Hélas! quelle tristesse! Il est enterré dans cette tombe.

## No. 3.

### Ast. v. i. 07.

(Planche LXXIV.)

Inscription de la tombe de dame Kia 賈, défunte femme de Fan Yong-long 范永隆, illégitimement[7] général de la garde *wou-ye tsiang-kiun* 武邪將軍.

La dame, pas de nom personnel, surnom Ngo-niu 阿女, originaire de Kao-tch'ang 高昌 (hien), dans Si-tcheou 西州, était fille du *tchong-lang* 中郎 illégitime Kia Che-keou 賈師苟. Quand dans sa jeunesse elle s'appliqua aux études des femmes, elle montra une intelligence extraordinaire, et sa renommée s'étendit loin au-dehors. Quand elle eut épousé Monsieur Fan, elle eut les qualités des femmes mariées, et mit en pratique les quatre vertus[8], sans être en défaut en un seul acte; constamment elle aimait les paroles des maîtres; respectueuse elle pratiquait l'intégrité qui convient à une femme; elle s'efforçait de mettre d'accord le luth et la harpe[9] pour une période de mille ans. Alors que son mari était en pleine force, les années qui lui étaient allouées par le Ciel ne durèrent pas plus longtemps; il advint que le mont King 荆 perdit sa pierre précieuse et Ho-p'ou 合浦 vit disparaître ses perles[10]; subitement il renonça à la lumière, et pour toujours retourna à la nuit profonde. Sa femme seule avec un enfant en bas-âge en ce jour resta veuve; des trois obéissances[11] elle n'en manqua pas une; la renommée de sa fidélité à son mari défunt fut extrême. Elle fit l'éducation de l'enfant tout petit, elle l'éleva jusqu'à ce qu'il fût grand, lui enseigna ses devoirs envers les autres, lui donnant exactement les leçons d'un père[12]. Dans l'appartement intérieur son fils la servit, sa conduite filiale à l'intérieur se manifesta; au dehors, il fut fonctionnaire loyal, et fit briller l'éclat de son père défunt. Au bout de peu de temps, les chauds et les froids s'étant succédé, les quatre saisons s'étant remplacées, subitement, la 2e année *k'ien-fong* (667 p. C.), le 6e jour du 10e mois, elle prit la maladie de cette époque, les remèdes prodigieux furent sans effet, les drogues merveilleuses ne la guérirent pas. Le 12e jour, le matin, à l'heure *tch'eou*, elle mourut dans sa maison, à l'âge de soixante-quinze ans; le 28e jour de ce mois, on l'enterra auprès de son mari[13] dans le champ situé au

[5] ... étendre le nombre de ses années = vivre plus longtemps.

[6] Formules pour désigner la mort sans prononcer le mot de 'mourir'; de même à la phrase suivante: 'il a fait que les 6 degrés de parentés ...' = *il les a mis en deuil*, donc *il est mort*.

[7] Je traduis par 'illégitimement' le mot *wei* 僞 qui désigne d'une part les rois locaux non reconnus par la Chine, et de l'autre tous leurs fonctionnaires.

[8] *Les quatre vertus* des femmes mariées, vertu dans les paroles, dans les actes, etc.

[9] *Le luth et la harpe* 琴瑟, *kin-chö* = mari et femme.

[10] = elle devint veuve. Le mont King a une pierre précieuse célèbre qui apparaît fréquemment dans la littérature; Ho-p'ou (dans le Kouang-tong actuel) avait une pêcherie de perles renommée au temps des Han.

[11] *Les trois obéissances.* La femme doit obéissance (1) avant son mariage à ses parents; (2) mariée, à son mari; (3) veuve, à son fils. Puisque la dame Kia est restée veuve avec son fils, elle a eu successivement à pratiquer les 3 obéissances aux 3 périodes de sa vie.

[12] 過庭之訓. *Kouo t'ing*, passer dans la cour de la maison, désigne le fils recevant l'éducation de son père. C'est une allusion à un passage du *Louen yu* XVI, XIII (Legge, *Chinese Classics*, I, 179–180) sur Confucius instruisant son fils Po-yu; l'enseignement de Confucius à ses disciples se faisait dans la cour de sa maison.

[13] Il était conforme aux rites d'enterrer la femme, à sa mort, dans la tombe de son mari défunt 合葬. Voir de Groot, *Religious System of China*, II, 800–806.

Nord-Ouest de la ville[14]. Moi, Li 禮, (son fils) j'ai manqué à la servir; quand, l'intelligence croissant avec les années, le désir de la servir s'éveilla en moi, le visage de ma mère bienveillante était anéanti; j'appelai le Ciel, je frappai la Terre, sans pouvoir être utile à l'âme (de la défunte); me souvenant de celle qui est loin, regrettant celle qui est morte[15], réellement je m'attachai au devoir de la piété filiale. Toute la parenté avait le cœur brûlant (de douleur); les serviteurs se frappaient la poitrine; les gens du village étaient remplis de tristesse; les habitants dans la rue pleuraient; on cessa de jouer de la musique, on supprima le sacrifice au dieu du sol[16], chacun renonça à ses intentions (de plaisir) et cessa de chanter. Hélas! quelle tristesse! Elle est enterrée dans cette tombe.

(De même que) la lumière qui passe à travers une fente ne dure pas[17],
(que) le rayon de l'éclair ne peut être conservé,
ainsi les années sont arrivées à leur fin, et la vie s'est épuisée,
leur cours a amené la maladie de la saison,
le tronc précieux s'est flétri,
l'arbre de jade s'est desséché.
Pour toujours elle a abandonné le jour,
à jamais elle a tranché le filet (de ce monde) de souillures.
Les parents ont perdu tout désir,
sur la route ils pleurent et ne chantent pas;
le fils plein de douleur saute,[18]
que lui reste-t-il à faire?

## No. 4.

### Ast. 010.

(Planche LXXV.)

Feu[19] le premier ministre *chang tchou kouo* 上柱國 Tchang 張, de . . .[20]-che ◯ 師. Le sieur (Tchang), de son nom personnel, et de son surnom[21] Siang-houan 相歡, était originaire de la sous-préfecture de Kao-tch'ang 高昌 dans Si-tcheou. Son arrière-grand-père (Tchang) Kiu 倶 fut *ming-wei tsiang-kiun* 明威將軍[22] (de la dynastie locale) illégitime. Le défunt actuel eut la charge de 'placé à la droite de la tente' *tchang-yeou* 帳右[23]

[14] Évidemment le cimetière même où cette stèle a été trouvée.

[15] Cette phrase reproduit en l'inversant un passage du *Louen yu* I, IX (Legge, *Chinese Classics*, I, 5).

[16] *on supprima le sacrifice au dieu du sol*: ce sacrifice était un sacrifice fait par le village entier: en le supprimant, le village entier (et non pas seulement les individus du village) se met en deuil; on le supprime parce qu'il est une cause de réjouissances, festins, etc.—Si cette phrase devait être prise à la lettre, il serait intéressant de constater que l'influence chinoise avait pénétré assez loin pour introduire dans les campagnes le culte purement chinois du Dieu du Sol; mais je pense qu'il s'agit là d'un cliché sans valeur réelle.

[17] Tout ce qui suit est écrit en vers de quatre mots. Rime 獸.

[18] Sauter sur place est une des manifestations rituelles du deuil.

[19] 古. Cf. note 3.

[20] 掄師 . . . -*che* (je ne puis lire le 1er caractère) est le nom du pays d'origine de Tchang Siang-houan, comme Touen-houang est celui de Tchang le *chu-lang*.

[21] 諱字相歡. Le nom personnel n'est pas donné, peut-être par respect, et le surnom *tzeu* seul est donné.

[22] Le titre chinois de *ming-wei tsiang-kiun* est déjà connu à Kao-tch'ang par les inscriptions publiées dans le *Saiiki kōko zufu*.

[23] 帳右 *tchang-yeou*, celui qui est à droite de la tente. Probablement la désignation locale du titre de premier ministre *chang-tchou-kouo* de l'en-tête de l'inscription. Je suppose que la droite doit être considérée comme le côté honorable, conformément à un usage local qui aurait été opposé à l'usage chinois; cela répond mieux au titre de *chang-tchou-kouo*, l'un des plus élevés de la hiérarchie chinoise, que d'admettre que la préséance est donnée à la gauche, à la chinoise: si on préfère supposer que le titre est conforme à l'usage chinois, il faudrait admettre qu'il y avait à ce moment à la Cour de Kao-tch'ang deux *chang-tchou-kouo*, un ministre de gauche (inconnu) et un ministre de droite (Tchang Siang-houan).

du roi illégitime; quand ce pays vint rendre hommage, (le défunt) se soumit à la dynastie impériale (T'ang), devint sujet de l'Empereur, et reçut le titre de *houai-yin t'ouei tcheng* 懷音隊正[24]. Avec sa famille il retourna à l'ancien siège de son pays; il s'en revint en son vol exercer sa grande force dans son village natal; sa renommée excellente ébranla au loin les quatre directions. Qui eût dit que le pin et le bambou auraient perdu leurs feuilles prématurément, comme font le jonc et le saule? Que celui qui était comme sage Tseu-lou, deviendrait le compagnon des esprits[25]! Sa femme et ses frères allèrent à la recherche de tous les Jivaka 耆域[26], et cherchèrent tous les moyens le guérir, mais ils ne rencontrèrent pas les jeunes garçons de la montagne occidentale[27]; subitement ils eurent le regret de le voir passer comme l'eau du ruisseau, ce qui fit que tous ses proches sautèrent (en rite de deuil), ils accompagnèrent tous ses funérailles; alors ils pleurèrent avec émotion comme (les sept fils) auprès de la source froide[28]; ils se plaignirent douloureusement auprès de l'arbre du dragon[29]. A l'âge de soixante-deux ans, cette année, le 21ᵉ jour du 1ᵉʳ mois, on le conduisit au Champ Occidental[30]. Désormais il est parti d'ici-bas, il s'est envolé dans l'autre monde. Hélas! quelle tristesse! Il est enterré dans cette tombe.

Stèle gravée le 21ᵉ jour du 1ᵉʳ [mois] de la 2ᵉ année *yong-long* (14 février 681 p. C.).

## CHRONOLOGIE

Les quatre inscriptions sont datées, deux en dates des T'ang qui ne présentent aucune difficulté (667 et 681), deux en ères locales des rois de la dynastie K'iu de Kao-tch'ang. Ces *nien-hao* locaux sont connus par les inscriptions funéraires et les mss. trouvés par la mission du *Nishi hongwanji* et publiés en fac-similé dans le *Seiiki kōko zufu* 西域考古圖譜 (1915). On peut établir la chronologie de cette dynastie de la façon suivante:

| Rois de Kao-tch'ang | Dates p. C. | Nien-hao |
|---|---|---|
| 1. K'iu Kia 嘉 (*tseu* Ling-fong 靈鳳) | 497–520 | |
| 2. K'iu Kouang 光 | 521–530 | |
| 3. K'iu Kien 堅 (ou Tseu-kien 子堅) | 531–547 | |
| 4. K'iu Hiuan-hi 玄喜 | 548–554 | |
| 5. K'iu Meou 茂 | 555–560 | *kien-tch'ang* 建昌 555–560 |
| 6. K'iu Han-kou 韓固 | 561–601 | *yen-tch'ang* 延昌 561–601 |
| 7. K'iu Po-ya 伯雅 | 602–623 | *yen-ho* 延和 602–623 |
| 8. K'iu Wen-t'ai 文泰 | 624–640 | *yen-cheou* 延壽 624–640 |
| 9. K'iu Tche-meou 智 (ou Tche-cheng 智盛) | 640 | |

[24] *t'ouei tcheng* est un des bas titres de la hiérarchie administrative locale des T'ang; on l'accompagne d'un titre: celui de *houai-yin t'ouei-tcheng* ne me paraît pas connu, mais il y en a d'autres du même genre.

[25] = mourut.

[26] Le nom de Jivaka, le célèbre médecin du temps du Buddha, est pris ici dans le sens de médecin excellent.

[27] *les jeunes garçons de la montagne occidentale.* Il y a là une allusion à une pièce de vers du Ts'ao Tche 曹植 (192–232 A.D.) intitulée *Fei long* 飛龍 (*Ts'ao Tseu-kien tsi* 曹子建集 k. 6, 14 *a*), où il raconte qu'il a rencontré deux jeunes Immortels montés sur un cerf blanc, et portant des herbes médicinales, qui lui ont indiqué le chemin du Palais Occidental 西堂 de Si-wang-mou 西王母.

[28] *auprès de la source froide.* Allusion à l'ode *K'ai fong* 凱風 du *Che king*, I, III, 8 (LEGGE, *Chinese Classics*, IV. 50), où les sept fils d'un mort et sa veuve pleurent leur père et mari défunt près d'une 'source froide'. L'allusion s'applique à un mort qui laisse veuve et enfants.

[29] *l'arbre du dragon.* Allusion que je n'ai pu découvrir. Peut-être faut-il y voir le nom de Nāgārjuna.

[30] *le Champ Occidental* = le cimetière à l'Ouest de la ville

Les deux dates nouvelles trouvées dans les inscriptions confirment ce tableau :

1° *yen-tch'ang* 11 (**Ast. 09.** Pl. LXXV) 571. (1re année 561)
(il est exact que le 1er jour du 3e mois de cette année soit *meou-chen*)

2° *yen-cheou* 9 (**Ast. i 6. 08.** Pl. LXXV) 632. (1re année 624)
(il est exact que le 1er jour du 5e mois de cette année soit *kia-yin*)

ces dates sont donc absolument sûres.

Cette liste complète et corrige sur certains points la liste que j'ai donnée précédemment dans le *Bulletin de l'École Française d'Extrême Orient* XV, 1915, no. 4, 57–60, ainsi que celle qu'a publiée M. Lo Tchen-yu 羅振玉 dans son Tableau Chronologique de la famille K'iu de Kao-tch'ang *Kao-tch'ang K'iu che nien pao* 高昌麴氏年表.

1° Le nom du roi de la période yen-tch'ang, K'iu Han-kou, que M. Lo avait dû laisser en blanc est ajouté d'après Toy. 042.

2° En dehors de cette addition, une correction importante est l'introduction d'un roi entre Kia, le fondateur, et, Kien, dont M. Lo fait le successeur de Kia, en notant qu'il y a un problème, mais sans en chercher la solution. Kia mourut en 520, et les historiens chinois ne mentionnent pas d'ambassade de Kien avant 531, époque où il reçut pour la première fois les titres, décernés précédemment à K'iu Kia par la cour des Wei, de Général Pacificateur de l'Ouest 平西將軍, Gouverneur de Koua tcheou 瓜州, Comte, ayant le titre de fondateur de la Dynastie, de la sous-préfecture de T'ai-lin 泰臨, roi de Kao-tch'ang. Or dans l'intervalle, en 528, le *Wei chou*, k. 10, 2 b, mentionne que le prince héritier 王世子 Kouang 光 reçut ces mêmes titres. Interprété strictement, ce passage pourrait être considéré comme indiquant l'avènement de ce prince à cette date : mais cela obligerait à supposer un prince inconnu entre 521 et 527 et porterait à dix le nombre des rois ; or nous savons que la dynastie ne compta en tout que 9 souverains (*Kieou T'ang chou*, k. 198, 4 a). Il faut donc admettre qu'il s'agit en réalité d'une reconnaissance tardive par la cour de Chine d'un roi qui, monté sur le trône quelques années plus tôt, n'entra en relation qu'à cette date. Cette introduction dans la liste du nom de Kouang avant celui de Kien concorde fort bien avec le *Kieou T'ang chou* qui appelle Po-ya le petit-fils à la 6e génération de Kia. On peut, il est vrai, opposer à ce système chronologique un passage d'un manuscrit de Toyuk daté de la période *yen-tch'ang* (rapporté par la Mission du Nishi-hongwanji), où le roi K'iu . . . (il faut restituer Han-kou, nom du roi de la période *yen-tch'ang*, d'après Toy. 042, au lieu de Po-ya comme fait le *Seiiki kōko zufu*, et de Kien, comme j'avais fait précédemment) parle de ses ancêtres à la 7e génération 先七世考妣, alors qu'il n'est que le 5e successeur de Kia. Mais cette difficulté, qui s'opposerait avec autant de force au système de M. Lo, puisque pour ce savant, le roi de la période *yen-tch'ang*, qu'il laisse innommé et qui est Han-kou, est le 4e successeur de Kia, est à mon avis plus apparente que réelle ; même sans tenir compte du fait que nous ignorons les liens de filiation des rois de Kao-tch'ang, et que le nombre des générations et celui des règnes n'est pas nécessairement le même, il suffit de remarquer que dans ce passage il s'agit de culte et non de succession royale pour la faire tomber, car les générations d'ancêtres immédiatement antérieures à celle du fondateur de la dynastie devaient, suivant l'usage, avoir reçu une place dans le Temple Ancestral.

Si la liste des rois de Kao-tch'ang de la dynastie K'iu est maintenant à peu près complète, il n'en est malheureusement pas de même de celle de leurs *nien-hao* : M. Lo a déjà fait remarquer qu'un des manuscrits de Touen-houang, le *Wei-mo yi ki* 維摩義記, k. 2, se termine par un colophon daté de la 2e année *kan-lou* 甘露, ère qu'en l'absence des signes cycliques il est impossible de mettre en place.

# APPENDIX B

## INVENTORY LIST OF COINS FOUND OR OBTAINED

PREPARED FROM NOTES BY

F. M. G. LORIMER AND J. ALLAN

### I. COINS FOUND AT OR BROUGHT FROM SITES BETWEEN KĀSHGAR AND MARĀL-BĀSHI

(See above, i. pp. 68 sqq.)

**a.** 2 Muhammadan coins brought from Khān-oi, of type of Muḥammad Arslān; cf. *Anc. Khotan*, ii, Pl. XC, No. 43.

**b.** 3 Muhammadan coins, said to have been found at Kurghān, Āstin-ārtush; of type of Sulaimān Khāqān; cf. *Anc. Khotan*, i, p. 575.

**c.** 3 Muhammadan coins, found between Bēsh-tam and Bogach-köl; of type of Muḥammad Arslān.

**d.** Muhammadan coins, brought by Ulūgh Ākhun as from foot of hills between Āstin-ārtush and Marāl-bāshi.

2 coins of Sulaimān Khāqān; cf. *Serindia*, iv, Pl. CXLI, No. 29.

1 coin of Muḥammad Arslān.

2 coins, completely worn.

**e.** 1 Muhammadan coin, type of Sulaimān Khāqān, from route to Lāl-tāgh site; cf. Hoernle, *Report on C.-A. Ant.*, i. Pl. III, No. 13.

### II. COINS BROUGHT FROM MAZĀR-TĀGH SITE

(See above, i. p. 92.)

1 Chinese coin, clipped, of late *Wu-shu* type.

1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).

### III. COINS COLLECTED AT OR FROM KHOTAN

(See above, i. p. 99.)

#### A.—COINS OF MISCELLANEOUS ORIGIN

**a.** Copper coins, batch Kh. 040–7. a, b.

1 Chinese coin of Yüan-fêng period (A. D. 1078–86).

1 Chinese coin of Ch'ung-ning period (A. D. 1102–7). Pl. CXX, No. 11.

4 Chinese coins of Ch'ien-lung period (A. D. 1736–96).

1 Chinese coin of Chia-ch'ing period (A. D. 1796–1821).

2 Chinese coins, much worn, unidentified.

**b.** Bronze coins presented by Li Ssŭ-yeh.

2 Chinese coins, of Wang Mang (A. D. 9–22), with legend *Ho-pu*. Pl. CXIX, Nos. 1–2.

**c.** Copper coins presented by Mr. Moldovack.

8 Sino-Kharoṣṭhī coins. Pl. CXIX, Nos. 5, 6.

1 Kushan coin of Kaniṣka. Pl. CXIX, No. 7.

1 Muhammadan coin, type Muḥammad Arslān.

**d.** Copper coins received as from Arka-kuduk and Kumat.

6 Muhammadan coins, much corroded and unidentified.

3 Muhammadan coins, type of Sulaimān Khāqān.

**e.** Copper coins received as from Jigda-kuduk.

7 Chinese coins, with legend *Wu-shu*.

10 Chinese coins, clipped, with legend *Wu-shu*, of late type.

1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).

1 Chinese coin of Hsi-ning period (A. D. 1068–78).

1 Chinese coin of Yüan-fêng period (A. D. 1078–86).

**f.** Copper coins brought as from Lachin-atā.

8 Chinese coins, with legend *Wu-shu*, clipped, late type.

1 Chinese coin, with legend *K'ai-yüan*.

3 Muhammadan coins, type of Sulaimān Khāqān.

**g.** Copper coins brought as from Kalalik.

8 Chinese coins of Ch'ien-yüan period (A. D. 758–60).

1 Chinese coin of Ta-li (?) period (A. D. 766–80).

1 Chinese coin of Ch'ung-ning period (A. D. 1102–7). Pl. CXX, No. 9.

h. Copper coins brought as from Bāsh-kumat.
11 Chinese coins, with legend *Wu-shu*, mostly clipped and badly corroded.
1 Chinese coin of Hsi-ning period (A. D. 1068–78).
10 Muhammadan coins, much worn, perhaps of Sulaimān Khāqān.

i. Copper coins brought as from Kizil-yār.
1 Sino-Kharoṣṭhī coin.
8 Muhammadan coins, type of Sulaimān Khāqān.
11 Muhammadan coins, corroded, prob. of Muḥammad Arslān.

j. Copper coins brought from Karim Ākhūn.
5 Chinese coins, with legend *Wu-shu*, late type.
2 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Ta-li period (A. D. 766–80).
15 Chinese coins, badly corroded, unidentified.

k. Copper coins brought by Abbas from Khotan 'Tatis'.
11 Chinese coins, clipped, late *Wu-shu* type.
1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).

l. Copper coins brought by Muḥammad Sharīf.
1 Muhammadan coin, perhaps of Muḥammad Arslān.
3 Muhammadan coins, prob. of Sulaimān Khāqān.
1 Muhammadan coin, half of, unidentified.

m. Batch of copper coins brought as from Yōtkan.
300 odd Chinese coins, corroded in lumps, prob. all with legend *Wu-shu*.
1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Ta-li period (A. D. 766–80).

n. Copper coins received from Muḥammad Sharīf as from Yōtkan.
10 Chinese coins, with legend *Wu-shu*.
3 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Ta-li period (A. D. 766–80).

o. Copper coins brought by Tokhta Ākhūn from 'Tatis near Hanguya, Arkalik.
1 Later Kushan coin, clipped and worn.
1 Chinese coin, with legend *Wu-shu*.
1 Chinese coin, with legend *K'ai-yüan*.
1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).
4 Muhammadan coins of Sulaimān Khāqān.

p. Copper coins brought as from Chalma-kazān.
2 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Ch'êng-ho (A. D. 1111–18).

## B.—COINS PURCHASED FROM BADRUDDĪN KHAN

a. Copper coins, batch Badr. 0147–64.
1 Chinese coin, large *Wu-shu* type.
3 Chinese coins, with legend *Wu-shu*, clipped, late.
1 Chinese coin, with legend *K'ai-yüan*.
2 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
2 Chinese coins of Ta-li period (A. D. 766–80). Pl. CXIX, No. 22.
1 Chinese coin of Hsi-ning period (A. D. 1068–78).
1 Chinese coin, of Emperor Ching-ti, with legend *Yung-tung wan hua* (A. D. 580–1).
2 Muhammadan coins, type of Sulaimān Khāqān.
1 Muhammadan coin of Muḥammad Arslān.

b. Copper coins, batch Badr. 0199–201.
1 Kushan coin, of Wima-Kadphises. Pl. CXIX, No. 8.
2 Sino-Kharoṣṭhī coins. Pl. CXIX, No. 4.

c. Copper coins said to come from Hanguya 'Tatis', batches Badr. 0202–45.
26 Chinese coins, with numerous frs., various types with legend *Wu-shu*, mostly clipped.
4 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Ch'ung-ning period (A. D. 1102–7).
1 Chinese coin of Ta-kuan period (A. D. 1107–11). Pl. CXX, No. 14.
2 Chinese coins, of Sung (?) dynasty, unidentified.
2 Muhammadan coins of Sulaimān Khāqān.

d. Copper coins said to come from Yōtkan, batch Badr. 0246–7.
45 Chinese coins, stuck together, all apparently of *Wu-shu* type.
1 Chinese coin with legend *K'ai-yüan*.
1 Chinese coin of T'ien-fu period (A. D. 936).
1 Chinese coin of Chih-tao period (A. D. 995–8).
1 Chinese coin of Yüan-fêng period (A. D. 1078–86).

e. Copper coins said to come from Ak-tiken, batch 0262–7.
37 Chinese coins, with legend *Wu-shu*, many corroded and stuck together.
3 Chinese coins, frs., with legend *K'ai-yüan*.
3 Chinese coins of Ch'ien-yüan period (A. D. 758–90).
1 Chinese coin of Sung-yüan period (A. D. 960–76).
1 Chinese coin of Hsien-p'ing period (A. D. 998–1004). Pl. CXX, No. 1.
1 Chinese coin of Hsiang-fu period (A. D. 1008–17).
1 Chinese coin of Huang-sung period (A. D. 1038–40).
1 Chinese coin of Chia-yu period (A. D. 1056–64).
2 Chinese coins of Hsi-ning period (A. D. 1068–78).
3 Chinese coins of Yüan-fêng period (A. D. 1078–86).
1 Chinese coin of Yüan-yu period (A. D. 1086–94).
1 Chinese coin of Yüan-fu (?) period, much worn (A. D. 1098–1101).
1 Chinese coin of Chêng-lung period (A. D. 1156–61).
2 Muhammadan coins, prob. of Muḥammad Arslān.

f. Batch of copper coins, Badr. 0268–9.
16 Chinese coins, with legend *Wu-shu*, mostly clipped.
1 Chinese coin, with legend *K'ai-yüan*.
8 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Chih-p'ing period (A. D. 1064–8).
1 Chinese coin of Hsi-ning period (A. D. 1068–78).

g. Copper coins said to come from Arkalik, batch Badr. 0270–1).

35 Chinese coins, with legend *Wu-shu*, mostly worn or frs.

1 Chinese coin with legend *K'ai-yüan.*

1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).

1 Chinese coin of Ta-li period (A. D. 766–80).

1 Chinese coin of Hsiang-fu period (A. D. 1008–17).

1 Chinese coin of Ch'ung-ning period (A. D. 1102–7).

1 Muhammadan coin of Sulaimān Khāqān.

h. Batch of copper coins, Badr. 0434–45.

45 Chinese coins, with legend *Wu-shu*, many small and clipped.

3 Chinese coins, with legend *K'ai-yüan.*

1 Chinese coin of Ch'ien-yüan period (A. D. 758–60).

1 Chinese coin of Chih-tao period (A. D. 995–8). Pl. CXIX, No. 25.

2 Chinese coins of Hsiang-fu period (A. D. 1008–17).

1 Chinese coin of T'ien-hsi period (A. D. 1017–22).

2 Chinese coins of T'ien-shêng period (A. D. 1023–32).

2 Chinese coins of Huang-sung period (A. D. 1038–40).

22 Chinese coins of Hsi-ning period (A. D. 1068–78). Pl. CXX, No. 2.

31 Chinese coins of Yüan-fêng period (A. D. 1078–86). Pl. CXX, No. 5.

6 Chinese coins of Yüan-yu period (A. D. 1086–94). Pl. CXX, No. 4.

1 Chinese coin of Shao-shêng period (A. D. 1094–8).

1 Chinese coin of Yüan-fu period (A. D. 1098–1101).

2 Chinese coins of Shêng-sung period (A. D. 1101–2).

1 Chinese coin of Ch'ung-ning period (A. D. 1102–7).

4 Chinese coins of Ch'êng-ho period (A. D. 1111–18).

2 Chinese coins of Hsüan-ho period (A. D. 1119–27). Pl. CXX, No. 8.

1 Chinese coin of Chia-yu period (A. D. 1056–64).

1 Chinese coin of Ch'ien-yen period (A. D. 1127–31).

1 Sino-Kharoṣṭhī coin.

16 Muhammadan coins of Sulaimān Khāqān.

2 Muhammadan coins resembling (?) *Serindia*, iv, Pl. CXLI, No. 32.

1 Muhammadan coin of Muḥammad Arslān.

## IV. COINS COLLECTED FROM OR NEAR DOMOKO

(See above, i. pp. 130 sq.)

a. Copper coins obtained by Badruddīn Khān, batch DK.

1 Sino-Kharoṣṭhī coin.

6 Chinese coins, with legend *Wu-shu*, clipped.

1 Chinese coin, with legend *K'ai-yüan.*

6 Chinese coins of Ch'ien-yüan period (A. D. 758–60).

1 Chinese coin of T'ien-fu period (A. D. 936–43).

1 Chinese coin of T'ai-ping period (A. D. 976–84). Pl. CXIX, No. 23.

1 Chinese coin of Hsien-p'ing period (A. D. 998–1004).

2 Chinese coins of Hsiang-fu period (A. D. 1008–17).

1 Chinese coin of Ming-tao period (A. D. 1032–4).

1 Chinese coin of Huang-sung period (A. D. 1038–40).

1 Chinese coin of Chih-ho period (A. D. 1054–6).

2 Chinese coins of Chia-yu period (A. D. 1056–64).

1 Chinese coin of Chih-p'ing period (A. D. 1064–8).

2 Chinese coins of Hsi-ning period (A. D. 1068–78).

1 Chinese coin of Yüan-fêng period (A. D. 1078–86).

5 Chinese coins of Yüan-yu period (A. D. 1086–94).

1 Chinese coin of Shao-shêng period (A. D. 1094–8).

1 Chinese coin of Yüan-fu period (A. D. 1098–1101).

2 Chinese coins of Chêng-ho period (A. D. 1111–18).

4 Muhammadan coins of Muḥammad Arslān.

7 Muhammadan coins of Sulaimān Khāqān.

b. Copper coins brought as from Uzun-tati, batch U. Z.

13 Chinese coins, with legend *Wu-shu*, clipped.

2 Chinese coins of Ch'ien-yüan period (A. D. 758–60).

1 Chinese coin of Ch'ung-ning period (A. D. 1102–7).

1 Chinese coin of Hsüan-ho (?) period (A. D. 1119–26).

4 Muhammadan coins of Sulaimān Khāqān.

2 Muhammadan coins of Muḥammad Arslān (?).

c. Copper coins bought at Achma as from Domoko 'Tatis'.

1 Chinese coin, with legend *Wu-shu*, clipped.

12 lumps of Muhammadan coins, corroded and sticking together.

## V. COPPER COINS FROM NIYA SITE, CHARCHAN, AND VĀSH-SHAHRI

1 Chinese coin, with legend *Wu-shu*, found near Stūpa (see above, i. p. 147).

1 Chinese coin of Chih-ho period (A. D. 1054–6), purchased at Charchan (see above, i. p. 158).

1 Chinese coin of Ch'ung-ning period (A. D. 1102–7), obtained from Vāsh-shahri Site (see above, i. p. 161).

## VI. COPPER COINS FOUND AT LOP DESERT SITES

### A.—COINS FROM RUINED SITES L. K. AND L. M.

(See above, i. pp. 184, 188, 196.)

**a.** Chinese coins found near L. K. fort.
3 coins, with legend *Wu-shu*, large type.
3 coins, of *Wu-shu* type, clipped or frs.
1 coin, with legend *Huo-ch'üan*.

**b.** 6 Chinese coins, with legend *Wu-shu*, large type, found at L. M. site.

### B.—COINS FROM LOU-LAN STATION L. A. OR ITS VICINITY

(See above, i. pp. 208, 217.)

**a.** Coins found 8½ miles beyond C. xciii.
1 Chinese coin, with legend *Wu-shu*, large type, broken.
1 Chinese coin of clipped *Wu-shu* type. Pl. CXIX, No. 14.
1 Chinese coin, with legend *Huo-ch'üan*, clipped.

**b.** Coins found at or close to walled station L. A. Pl. CXIX, Nos. 15, 16.
29 Chinese coins, with legend *Wu-shu*, many clipped.
1 Chinese coin, with legend *Wu-shu*, found in ruin L. A. I.
2 Chinese coins, with legend *Wu-shu*, excavated from refuse heap L. A. VI. ii.
21 Chinese coins of small uninscribed ('goose-eye') type. Pl. CXIX, Nos. 17, 18.
3 Chinese coins with legend *Huo-ch'üan*. Pl. CXIX, Nos. 9, 10.

### C.—COINS FROM CEMETERY L. C. AND ITS VICINITY

(See above, i. p. 246.)

**a.** Coins found in grave-pits.
1 Chinese coin, with legend *Wu-shu*, large.
1 Chinese coin, uninscribed, large.

**b.** Coins found near L. C. and on way to L. E.
4 Chinese coins, with legend *Wu-shu*.
1 Chinese coin, uninscribed, large.

### D.—COINS FROM L. E. CASTRUM AND MESA L. F.

(See above, i. pp. 263, 266.)

**a.** 1 Chinese coin, with legend *Wu-shu*, large, found near circumvallation of L. E.

**b.** 1 Chinese coin, of clipped *Wu-shu* type, found in room L. F. iii.
5 Chinese coins, with legend *Wu-shu*, from foot of Mesa L. F.
4 Chinese coins, of late *Wu-shu* type, clipped, from foot of Mesa L. F.

### E.—COINS FROM MINOR SITES, L. D., L. G., L. I., L. J., L. Q.

(See above, i. pp. 218 sq., 284, 290, 744.)

**a.** Coins found at ruin L. D.
11 Chinese coins, large *Wu-shu* and uninscribed.
1 'Lotus root' money, attributed to Yüan-yen period (12–8 B.C.). Pl. CXIX, No. 3.
9 Chinese coins, of small or clipped *Wu-shu* type.

**b.** Coins found at or near ruin L. G.
7 Chinese coins, with legend *Wu-shu*.
1 Chinese coin, with legend *Huo-ch'üan*.
3 Chinese coins, large, uninscribed.
4 Chinese coins, of small clipped type.

**c.** 2 Chinese coins, with legend *Wu-shu*, found NE. of L. I.

**d.** 211 Chinese coins, with legend *Wu-shu*, large, in perfect condition, found ENE. of L. J. on ancient route line. Pl. CXIX, No. 12.

**e.** 1 Chinese coin, with legend *Wu-shu*, found NNW. of L. Q.

#### F.—COINS FOUND ON LOP DESERT MARCHES.

(See above, i. pp. 274, 284, 296, 302 sq., 747.)

**a.** 2 Chinese coins, with legend *Wu-shu*, found near C. xcvi.

**b.** 1 Chinese coin, with legend *Wu-shu*, found S. of C. xcix.

**c.** 1 Chinese coin, with legend *Wu-shu*, found ½ m. E. of C. ci.

**d.** 5 Chinese coins, with legend *Wu-shu*, found on Mesa, 6 miles E. of C. ci. Pl. CXIX, No. 11.

**e.** 2 Chinese coins, with legend *Wu-shu*, found 13 and 14½ miles, resp., SE. of C. ciii.

**f.** 1 Chinese coin, frs. of, prob. *Wu-shu* type, found NW. of C. ccxlix. a.

**g.** 1 Chinese coin, with legend *Wu-shu*, found SW. of Toghrak-bulak.

### VII. COPPER COINS FOUND ALONG ANCIENT HAN LIMES

(See above, i. pp. 345, 349, 351, 373, 376 sq., 382, 384, 391 sq., 400.)

**a.** 1 Chinese coin, of late clipped *Wu-shu* type, found at watch-tower T. xxii. d.

**b.** 1 Chinese coin, clipped *Wu-shu* type, found in watch-station T. xxiii. b.

**c.** 1 Chinese coin, with legend *Wu-shu*, found at watch-station T. xxiii. f.

**d.** 1 Chinese coin, with legend *Wu-shu*, found at watch-station T. xl. b.

**e.** 1 Chinese coin, with legend *Wu-shu*, fr. of, found at watch-station T. xli. c.

**f.** 1 Chinese coin, of clipped *Wu-shu* type, found at watch-tower T. xli. d.

**g.** 1 Chinese coin, with legend *Wu-shu*, found at watch-station T. xli. e.

**h.** 1 Chinese coin, frs. of, with legend *Huo-ch'üan*, found below watch-tower T. xli. f.

2 Chinese coins, of Manchu period, worn, found near T. xli. f.

**i.** 1 Chinese coin, appar. of Kang-hsi period (A. D. 1662–1723), found at ruin T. xli. g.

**j.** 1 Chinese coin, with legend *Wu-shu*, found at watch-post T. xli. k.

**k.** 1 Chinese coin, appar. with legend *Wu-shu*, found at station T. xli. l.

**l.** 1 Chinese coin, with legend *Wu-shu*, found at watch-tower T. xli. r.

**m.** 1 Chinese coin, with legend *Wu-shu*, found at watch-tower T. xliii. a.

**n.** 1 Chinese coin, with legend *Wu-shu*, found at watch-tower T. xliii. g.

**o.** 1 Chinese coin, fr., perhaps of Wang Mang (A. D. 9–23; cf. Lockhart, Nos. 73–6), found at station T. xliii. h.

**p.** 1 Chinese coin, with legend *Wu-shu*, found at tower T. xliii. i.

**q.** 1 Chinese coin, prob. with legend *Wu-shu*, found at tower T. xliv. a.

**r.** 2 Chinese coins, with legends *Wu-shu* and *Huo-ch'üan* resp., found at watch-tower T. xliv. c.

**s.** 1 Chinese coin of Kang-hsi period (A. D. 1662–1723), found near watch-tower T. xliv. d.

### VIII. COPPER COINS FOUND AT OR NEAR KHARA-KHOTO

#### A.—COINS FROM RUINED TOWN OF KHARA-KHOTO

(See above, i. pp. 441 sq.)

**a.** 1 Chinese coin of Hsi-ning period (A. D. 1068–78), found below image base in shrine K. K. 1.

**b.** 1 Chinese coin of Ch'ung-ning period (A. D. 1102–7), found in NW. corner of walled area.

**c.** Coins found within or outside walled town.

1 Chinese coin, with legend *Wu-shu*.

3 Chinese coins, with legend *K'ai-yüan*.

1 Chinese coin of T'ai-ping period (A. D. 976–84). Pl. CXIX, No. 24.

1 Chinese coin of Chih-tao period (A. D. 995–8).

2 Chinese coins, perhaps of Hsiang-fu period (A. D. 1008–17).

1 Chinese coin of Chih-ho period (A. D. 1054–6)

1 Chinese coin of Chia-yu period (A. D. 1056–64).

1 Chinese coin of Chih-p'ing period (A. D. 1064–8).

1 Chinese coin of Yüan-fêng period (A. D. 1078–86).

2 Chinese coins of Yüan-yu period (A. D. 1086–94).

1 Chinese coin of Shao-shêng period (A. D. 1094–8). Pl. CXX, No. 7.

2 Chinese coins of Ch'ung-ning period (A. D. 1102–7). Pl. CXX, No. 10.

1 Chinese coin of Hsüan-ho period (A. D. 1119–27).

1 Chinese coin of Chêng-lung period (A. D. 1156–61). Pl. CXX, No. 12.

1 Chinese coin of Chih-ta period (A. D. 1308–12). Pl CXX, No. 13.

B.—COINS FROM RUINED SETTLEMENT E. OF KHARA-KHOTO

(See above, i. p. 455.)

a. 1 Chinese coin of Shêng-sung period (A. D. 1101–2), found at ruin K. E. vi.

b. Coins found at ruins K. E. ix–x.
1 Chinese coin, with legend *Wu-shu*.
1 Chinese coin of clipped *Wu-shu* type.
1 Chinese coin, with legend *K'ai-yüan*.
1 Chinese coin of T'ien-hsi period (A. D. 1017–22).
2 Chinese coins of Yüan-yu period (A. D. 1086–94).
1 Chinese coin, fr. of Sung dynasty issue.
1 Chinese coin of Chia-ch'ing period (A. D. 1796–1821).

c. Coins found at ruins K. E. xiv–xix.
1 Chinese coin, with legend *K'ai-yüan*.
2 Chinese coins of Ching-yu period (A. D. 1034–8).
1 Chinese coin of Hsi-ning period (A. D. 1068–78), Pl. CXX, No. 3.
1 Chinese coin of Yüan-yu period (A. D. 1086–94).
2 Chinese coins, appar. of Sung dynasty, unidentified.
1 non-Chinese coin, not identified.

C.—COINS FROM RUINED FORT OF ADŪNA-KŌRA

(See above, i. p. 436.)

4 Chinese coins, with legend *K'ai-yüan*.

1 Chinese coin of Hsien-p'ing period (A. D. 988–1004).

IX. COPPER COINS OF MANCHU DYNASTY FOUND AT LO-T'O-CH'ÊNG AND PEI-T'ING.

(See above, i. p. 509.)

a. 85 Chinese coins from Lo-t'o-ch'êng, all fragmentary, of issues of Shun-chih, Hsien-fêng, Yung-chêng, Ch'ien-lung, Tao-kuang periods (A. D. 1644–1851).

b. 1 Chinese coin from ruined temple, Pei-t'ing, of Manchu period, unidentified.

X. COINS EXCAVATED OR PURCHASED AT KARA-KHŌJA

(See above, ii. p. 590 sqq.)

a. 5 Chinese coins, with legend *K'ai-yüan*, found in ruin Kao. i.

b. Coins found near ruin Kao. i.
1 Chinese coin, with legend *K'ai-yüan*.
1 Chinese coin of Ch'ien-yung period (A. D. 780–4).
1 Chinese coin of Yüan-yu period (A. D. 1086–94).

c. Coins found in hoard of ruin Kao. iii.
27 Chinese coins, with legend *K'ai-yüan*.
5 Chinese coins of Ch'ien-yüan period (A. D. 758–60).
1 Chinese coin of Ch'ien-chung period (A. D. 780–4).
6 Chinese coins, frs. doubtful, some of Ch'ien-yüan or Ta-li period.
1 Chinese coin of Shun-hua period (A. D. 990–5).
1 Chinese coin of Hsiang-fu period (A. D. 1008–17).
1 Chinese coin of Huang-sung period (A. D. 1038–40).
2 Chinese coins of Hsi-ning period (A. D. 1068–78).
4 Chinese coins of Yüan-fêng period (A. D. 1078–86). Pl. CXX, No. 6.
13 Chinese coins of Ch'ung-ning period (A. D. 1102–7).

d. Coins brought or purchased at Kara-khōja.
1 Sasanian coin, Æ.
2 Chinese coins, with legend *K'ai-yüan*.
1 Chinese coin, with four char., unidentified.
7 Muhammadan coins, unidentified.

XI. COPPER COINS PURCHASED AT TOYUK

(See above, ii. pp. 614 sqq.)

10 Chinese coins, with legend *K'ai-yüan*. Pl. CXIX, No. 19.
2 Chinese coins of Ch'ien-yüan period (A. D. 758–60). Pl. CXIX, No. 21.
1 Chinese coin of Hsiang-fu period (A. D. 1008–17).
2 Chinese coins of T'ien-shêng period (A. D. 1023–32).
1 Chinese coin, Sung issue, worn and doubtful.
1 Chinese coin of Ching-yu period (A. D. 1034–8).
1 Chinese coin of Chih-ho period (A. D. 1054–6).

XII. COINS FROM TOMBS OF ASTĀNA

(See above, ii. pp. 646 sqq., 659.)

a. 1 coin *A'*, thin imitation of Byzantine gold coin, 5th–6th cent., found in mouth of body in Ast. i. 3; see Pl. CXX, No. 17.

2 Sasanian coins Æ, of Hormazd IV (A. D. 579–90) and Khusrau I (A. D. 531–79), found over eyes of body in Ast. i. 3; see Pl. CXX, Nos. 18, 19.

1 Chinese coin, with legend *Ch'ang p'ing wu shu* (issue of Sui dynasty, A.D. 581–618), found in Ast. i. 3. Pl. CXIX, No. 13.

b. 1 coin Ꜹ, thin imitation of Byzantine gold coin, 5th–6th cent., found in mouth of body, Ast. i. 5; see Pl. CXX, No. 16.

c. 1 coin Ꜹ, thin imitation of Byzantine gold coin, 5th–6th cent., found in mouth of body, Ast. i. 6; see Pl. CXX, No. 15.

2 Chinese coins, with legend *Wu-shu*, found in Ast. i. 6.

d. 1 Chinese coin, with legend *K'ai-yüan*, from Ast. iii. 2. Pl. CXIX, No. 20.

e. 1 Sasanian coin Æ, broken into small frs., from mouth of body, Ast. v. 2.

## XIII. COPPER COINS FOUND AT YING-P'AN SITE

(See above, ii. pp. 751, 753.)

1 Chinese coin, with legend *Wu-shu*, found near main Stūpa, Ying. I.

1 Chinese coin, with legend *Wu-shu*, found on 'Tati' E. of Ying. II.

1 Chinese coin, badly corroded, found near shrine, Ying. II.

## XIV. COPPER COIN FOUND AT WATCH-STATION Y. I (KURGHAN)

(See above, ii. p. 770.)

1 Chinese coin, frs. of, with legend *K'ai-yüan*.

## XV. COPPER COINS OBTAINED AT KUCHA

(See above, ii. p. 822.)

a. 7 Sino-Kharoṣṭhī coins.
1 coin, non-Chinese, much worn and unidentified.
4 Chinese coins, with legend *Wu-shu*.
3 Chinese coins of late clipped *Wu-shu* type.
3 Chinese coins, small, with legend *Wu-shu*, showing also circle and ellipse (on two legend wanting).
1 Chinese coin, with legend *K'ai-yüan*.
3 Chinese coins of Ch'ien-yüan period (A.D. 758–60).
1 Chinese coin of Ch'ien-chung period (A.D. 780–4).
1 Chinese coin of Chêng-ho period (A.D. 1111–18).

b. Coins received as from S. of Yulduz-bāgh.
2 Muhammadan coins Æ, unidentified.
3 Muhammadan coins Æ, uncertain local Mongol dynasty, 14th century. Pl. CXX, Nos. 22, 23.

c. Coins brought as from Yulduz-bāgh sites.
3 Sino-Kharoṣṭhī coins.
9 Chinese coins, with legend *Wu-shu*.
3 Chinese coins, uninscribed.
9 Chinese coins of clipped *Wu-shu* type.

d. Coins brought as from Dawān-kum 'Tati' sites.
2 Chinese coins, with legend *Wu-shu*.
10 Chinese coins of small clipped *Wu-shu* type.
1 Chinese coin, fr. of, doubtful (issue of Ching-ti, A.D. 580–1 ?).

## XVI. COPPER COINS FOUND AT SITES WEST OF KUCHA

(See above, ii. pp. 813, 816.)

a. 3 Chinese coins, with legend *Wu-shu* (one clipped), found at Tajik.

b. 1 Chinese coin of Ta-li period (A.D. 766–80), found at ruin T. A. I, Toghrak-akin site.

c. Coins found at Cave T. A. IV, Toghrak-akin site.
1 Chinese coin, late clipped *Wu-shu*.
1 Chinese coin, with legend *K'ai-yüan*.
1 Chinese coin of Ta-li period (A.D. 766–80).
14 Chinese coins of Ch'ien-chung period (A.D. 780–4).
7 Chinese coins, too much worn for identification; prob. T'ang issues.

d. 1 Chinese coin, with legend *K'ai-yüan*, found at Dawān-kum 'Tati'.

## XVII. COINS FOUND AT SĪSTAN SITES

a. 1 Sasanian coin Æ, of Queen Borān (A.D. 630–1), dated year one, found at foot of rotunda, Pai-kash-i-Rustam (see above, ii. p. 946). Pl. CXX, No. 20.

b. Coins found at Machi site (see above, ii. p. 946).
1 Muhammadan coin Æ, too much worn for identification.
1 Muhammadan coin, fr. of, uncertain, 17th–18th cent.

c. Coins found at Kalāt-i-gird (see above, ii. p. 948).
1 Muhammadan coin, of Qutbuddin, Shāh of Nimrūz. Pl. CXX, No. 21.
1 Muhammadan coin, perhaps of Fīrūz II of Delhi.
11 Muhammadan coins, unidentified, mostly clipped and worn.

# TABLE OF COIN SPECIMENS REPRODUCED IN PLATES CXIX AND CXX

## PLATE CXIX

| *No.* | *Description.* | *Reign, period, or legend.* | *Place of find or purchase.* |
|---|---|---|---|
| 1 | Chinese | Wang Mang, *Ho-pu* (A.D. 9–22) | Khotan |
| 2 | do. | do. do. | do. |
| 3 | do. | 'Lotus root' money (12–8 B.C.?) | Lou-Lan, L. D. |
| 4 | Khotanese | Sino-Kharoṣṭhī | Khotan |
| 5 | do. | do. | do. |
| 6 | do. | do. | do. |
| 7 | Indo-Scythian | Kaniṣka | do. |
| 8 | do. | Wima-Kadphises | do. |
| 9 | Chinese | Wang Mang, *Huo-ch'üan* (A.D. 9–22) | Lou-lan, L. A. |
| 10 | do. | do. do. | do. |
| 11 | do. | *Wu-chu* | Lop Desert |
| 12 | do. | do. | do. |
| 13 | do. | do. (Sui dynasty) | Astāna |
| 14 | do. | Late clipped *Wu-chu* | Lou-lan, L. A. |
| 15 | do. | do. | Lop Desert |
| 16 | do. | do. | Lou-lan, L. A. |
| 17 | do. | do. | do. |
| 18 | do. | do. | do. |
| 19 | do. | T'ang, *K'ai-yüan* | Toyuk |
| 20 | do. | do. | Astāna |
| 21 | do. | Ch'ien-yüan (A.D. 758–60) | Toyuk |
| 22 | do. | Ta-li (A.D. 766–80) | Khotan |
| 23 | do. | T'ai-ping (A.D. 976–84) | Domoko |
| 24 | do. | do. do. | Khara-khoto |
| 25 | do. | Chih-tao (A.D. 995–8) | Khotan |

## PLATE CXX

| *No.* | *Description.* | *Reign, period, or legend.* | *Place of find or purchase.* |
|---|---|---|---|
| 1 | Chinese | Hsien-p'ing (A.D. 998–1004) | Khotan |
| 2 | do. | Hsi-ning (A.D. 1068–78) | do. |
| 3 | do. | do. do. | Khara-khoto |
| 4 | do. | Yüan-yu (A.D. 1086–94) | Khotan |
| 5 | do. | Yüan-fêng (A.D. 1078–86) | do. |
| 6 | do. | do. do. | Kara-khōja |
| 7 | do. | Shao-shêng (A.D. 1094–8) | Khara-khoto |
| 8 | do. | Hsüan-ho (A.D. 1119–26) | Khotan |
| 9 | do. | Ch'ung-ning (A.D. 1102–7) | do. |
| 10 | do. | do. do. | Khara-khoto |
| 11 | do. | do. do. | Khotan |
| 12 | do. | Chêng-lung (A.D. 1156–61) | Khara-khoto |
| 13 | do. | Chih-ta (A.D. 1308–12) | Khotan |
| 14 | do. | Ta-kuan (A.D. 1107–11) | Khotan |
| 15 | do. | Imitation of 4th–5th cent. Byzantine gold coin | Astāna |
| 16 | do. | do. do. | do. |
| 17 | do. | do. do. | do. |
| 18 | Sasanian | Hormazd IV (A.D. 579–90) | do. |
| 19 | do. | Khusrau I (A.D. 531–79) | do. |
| 20 | do. | Queen Boran (A.D. 630–1) | Sīstān |
| 21 | Muhammadan | Quṭbuddīn, Shāh of Nimrōz | do. |
| 22 | do. | Uncertain local dynasty, 14th cent. | Kuchā |
| 23 | do. | do. do. | do. |

# APPENDIX C

# NOTE ON THE PHYSICAL ANTHROPOLOGY OF THE PAMIRS AND OXUS BASIN

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THE physical measurements on which the following note is based were collected by Sir Aurel Stein on his third archaeological expedition to Central Asia in 1915. They constitute an extremely valuable supplement to the series which he obtained on his second expedition, in 1906–8, in the Eastern Pamirs and Chinese Turkestan. Sir Aurel allowed me the privilege of examining the data obtained on this earlier expedition, and the result was a paper, published in vol. xlii of the *Journal of the Royal Anthropological Institute* (1912), entitled 'Notes on the Physical Anthropology of Chinese Turkestan and the Pamirs'. This paper was subsequently reprinted, with additional tables, as an appendix to *Serindia* (Oxford University Press, 1921), by permission of the Council of the Royal Anthropological Institute.

As implied above, the following note is supplementary to that just mentioned. The measurements recorded by Sir Aurel on his last journey not only shed fresh light on the physical characters of the Wakhi and Kirghiz, but carry his survey westward, to the secluded valleys on the right bank of the Ab-i-Panja and to the regions of Karategin and Bokhara; further, they include important information concerning the populations of the terminal waters of the Helmand river, Sistani and Sayad, and also the neighbouring Biloch.

### METHOD.

The measurements and other observations recorded, and the method which I have employed in dealing with them, are precisely the same as I have described in detail in my previous paper. I will, therefore, content myself with this reference in order to save space. But I should like to add that the 'Differential Index', which I employed in the previous calculations, has again proved to be of very great value, though, I admit, the labour involved in its calculation for so many tribal groups is almost prohibitive.

### THE PEOPLE.

Sir Aurel obtained measurements of the following groups:

(1) Kirghiz; pastoral nomads of the Pamirs; of Mongolo-Turki stock; see Figs. 365, 439.

(2) Özbeg; another Turki-speaking pastoral people, the latest invaders of the Samarkand-Bokhara tract.

(3) Tajik; of Persian speech, in the valleys and oases of Bokhara territory.

(4) Karategin; migrants of, presumably, Tajik stock from the lower valleys towards the Oxus, who are gradually pressing back the semi-nomadic, semi-agricultural tribes of Turki stock in the upper valley of the Kizil-su (Surkh-ab), the latter being probably allied to the Özbeg.

(5) Darwazi and (6) Wanji; a Sunni people, who now speak the Persian of the Tajik, occupying the region between the Karategin and the great northern bend of the Ab-i-Panja; see Fig. 446.

(7) Yazgulami, (8) Roshani, (9) Shughnani, and (10) Ishkashmi; the Iranian-speaking populations of the secluded valleys running eastward from the right bank of Ab-i-Panja above its great northern bend; see Figs. 366, 441, 442, 443, 444, 445.

(11) Wakhi of Wakhan, on the south bank of the Ab-i-Panja east of the Ishkashmi, who speak a dialect allied to that of the Shughnani and Roshani; see Fig. 440.

(12) Sistani and (13) Sayad in the terminal basin of the Helmand river. The Sistani are obviously compounded of very mixed elements; but the Sayad are a shy, primitive tribe of fishers and hunters, whose

mode of life and exclusiveness rather suggest that they represent the remains of a submerged aboriginal population; see Fig. 454.

(14) Biloch; military levies from Baluchistan.

The few historic and linguistic notes given above are added merely as a supplementary interest. In the subsequent discussion attention has been focused on the physical characters of the various groups, and evidence of connexion derived from other sources has been practically neglected.

*Head-length.* (Table I.)

As regards this absolute, the Sistani show the longest heads (average, 186·24), followed closely by the Sayad (185·55), Tajik (185·19), and Biloch (184·83).

At the other end of the scale stand the Ishkashmi (174·71), separated by an appreciable interval from the Wakhi (176·74), Yazgulami (178·90), Shughnani (179·22), and Özbeg (179·22). In the middle fall the peoples of Roshan, Darwaz, and Karategin, and also the Kirghiz. In the respect of head-length, therefore, the populations lying along the Āb-i-Panja tend to approximate, while the Tajik of Bokhara stand with the peoples of Sistan and its immediate region.

*Head-breadth.* (Table I.)

In head-breadth, as might be expected, the Kirghiz lead (154·59), but the Tajik follow closely (154·06), with the Wakhi (153·50) and Özbeg (153·44). In head-length the Tajik approximated to the Sistan group (Sistani, Sayad, and Biloch), but in this case the latter stand right at the other end of the scale. The Biloch show the lowest figure for head-breadth (141·97); next come the Sistani (142·35), the Sayad (143·18), and, rather unexpectedly, the Darwazi (145·54). The rest of the peoples, being those who occupy the valleys running from the Āb-i-Panja, show averages which stand extraordinarily close; no less than eight falling between 150·00 and 148·45.

*Cephalic Index.* (Table I.)

The Sistani, Biloch, and Sayad form the most dolichocephalic group (76·50, 76·81, and 77·21 respectively), separated by a perceptible gap from the Darwazi, whose index (79·88) is the next lowest. Most brachycephalic are the Wakhi (86·89), Özbeg (86·19), and Ishkashmi (85·71). The rest, including the Tajik of Bokhara, fall between 79·88 (Darwazi) and 84·04 (Kirghiz).

The head-measurements, therefore, appear to indicate that the Sīstani-Sayad-Biloch constitute a group at one end of the series, while the Wakhi and Ishkashmi, the Turki Özbeg, and the more Mongoloid Kirghiz stand together at the other end. In between, the peoples of the Āb-i-Panja and its valleys do not differ greatly among themselves; while the Tajik of Bokhara, tending first to one extreme and then to the other in their absolutes, fall fairly near the centre in their index.

*Nasal-length.* (Table II.)

The averages for nose-length show a grouping which is interesting as compared with head-measurements. The extremes are Sistani (50·31) and Özbeg (44·44). And since the Sayad (49·35) and Biloch (49·00) fall near the Sistani, while the Kirghiz (45·02) fall near the Özbeg, opposition between the Sistan-Biloch group and the Mongolo-Turki group is maintained. But the Wakhi (49·78) and Ishkashmi (49·38), who in head-measurements approximated to the Kirghiz and Özbeg, now appear grouped with the Sistani-Sayad. The rest fall between 48·62 (Shughnani) and 46·00 (Yazgulami) with the exception of the Wanji, who, on this occasion, take a position between the Özbeg and Kirghiz with an average of 44·74.

*Nasal-breadth.* (Table II.)

This measurement produces results which are rather confusing. The Wanji, who in nose-length stood between the Özbeg and Kirghiz at the bottom of the scale, now show the lowest nasal-breadth (25·04). And, though the Özbeg are not far off (26·56), the Kirghiz show by far the highest figure (34·20), separated by some distance from the Tajik (31·43), who are followed by the Ishkashmi and Wakhi (29·35 and 28·41) respectively. Of the rest, the Sistani-Biloch group maintain their connexion, falling together in the middle of the rest. The Darwazi and Yazgulami are towards the lower end of the scale, next to the Wanji, with averages of 26·08 and 25·80 respectively.

*Nasal Index.* (Table II.)

As might be expected from the short analysis of the absolute nasal-breadths, the nasal indices also are rather confusing. Moreover, they are the less useful, because in every case the standard deviations are high. The Kirghiz are by far the most platyrrhine (77·14), the Tajik of Bokhara following at a long distance with an average index of 66·54, and the Wanji also at some distance (60·87). The Sistani are the most leptorrhine (54·48). The rest fall between, the Biloch and Sayad (57·44 and 57·68) standing together just below the Özbeg (59·96).

The nasal measurements show, therefore, that though the Wakhi and Ishkashmi approximate in head-measurements to the Kirghiz and Özbeg, they are considerably more leptorrhine than the former; moreover that, in nasal-breadth, a considerable difference exists between the Kirghiz and Özbeg. The Sistani-Sayad-Biloch combination is not disturbed, while the Wakhi still show affinities with the Ishkashmi, the Darwazi with the Wanji, and the Oxus peoples with each other. The position of the Tajik is still uncertain.

*Bizygomatic-breadth.* (Table III.)

The Ishkashmi and Wakhi exhibit the narrowest faces (122·50 and 122·84, respectively), followed by the Tajik (124·37). At the other end of the scale are the Sayad (135·39), Özbeg (135·33), and Karategin (134·27). The Wakhi-Ishkashmi, therefore, as in nasal absolutes, show strong differentiation from the Özbeg, but the Sayad stand with the latter and not with the former. The Sayad, Sistani (132·30), and Biloch (130·63) show a more strained relationship than in any of the measurements yet considered. The Darwazi and Wanji (131·88 and 133·74) fall on either side of the Sistani.

*Facial-length.* (Table III.)

This absolute shows a different grouping. The Shughnani (118·11), Sistani (117·65), and Wakhi (117·25) provide the *maxima*; the Yazgulami (110·05), Darwazi (113·28), and Özbeg (113·89) the *minima*. In respect of this measurement the Ishkashmi (114·79) stand rather aloof from the Wakhi, and the relationship between the Sistani, Sayad (116·73), and Biloch (114·43) is still rather attenuated. Again the Tajik approximate to the Wakhi (116·75), and the Kirghiz (116·89) exhibit considerable differentiation from the Özbeg.

*Total Facial Index.* (Table III.)

A consideration of the averages of this index restores certain connexions which seemed to be endangered by the absolutes. At the leptoprosopic end of the scale are the Wakhi (95·68), Shughnani (94·20), Tajik and Ishkashmi (both 94·03). Most euryprosopic are the Yazgulami (84·03), followed by the Özbeg (84·47). At this end of the scale stand the Darwazi and Wanji near together (86·28 and 86·69); while the Sayad, Biloch, and Sistani (86·29, 87·64, and 89·26 respectively) fall far nearer together than in the case of their absolute measurements.

On the whole the total facial-measurements and index do not give results which are in contradiction to those already discussed. A slight weakening in the Sistani-Sayad-Biloch combination is evident, while the difference between the Kirghiz and Özbeg is emphasized. At the same time the connexion of the Tajik with the Wakhi-Ishkashmi-Shughnani is reinforced.

*Upper Facial-length.* (Table IV.)

This measurement does not produce results very far removed from those of the total facial-length, though the order in series is not the same. In total facial-length the *maxima* were provided by the Shughnani, Sistani, and Wakhi, in that order. In the measurement under consideration we have, at this end of the scale, Sistani (74·73), Sayad (73·03), and Wakhi (72·73), the Shughnani having fallen to 72·12, below the Biloch (72·20). At the other end, we have still the Özbeg (68·20) and Yazgulami (68·35), but the Darwazi have receded towards the centre with an average of 71·56. The Tajik (72·06) remain grouped with the longer-faced peoples.

*Upper Facial Index.* (Table IV.)

As regards this index, again the Wakhi (59·57), Ishkashmi (58·50), Tajik (57·56), and Shughnani (57·39) constitute the most leptoprosopic group; the Özbeg (50·30), Yazgulami (52·08), and Wanji (52·83), the most euryprosopic. This reverses the position of the Darwazi (54·30) and Wanji respectively. The differences which appear are obviously due to the comparative development of the lower mandible, a question which is at present quite obscure; but it is obvious that this comparative development is not so great as to produce a vast difference

in the summation of facial proportions. To take an instance: It has already been shown that the connexion established between the Sistani, Sayad, and Biloch as regards head- and nose-measurements is to some extent weakened by a consideration of the total facial-measurements. The upper facial-measurements show a similar weakening, not in the same proportion, but in the same direction.

| —— | *Sistani.* | *Biloch.* | *Sayad.* |
|---|---|---|---|
| Total Facial Index .. .. .. | 89·26 | 87·64 | 86·29 |
| Upper Facial Index .. .. .. | 56·55 | 55·31 | 53·96 |

The upper facial-measurements and index show, therefore, approximately the same results as the total facials.

*Head-circumference.* (Table IV.)

The Ishkashmi are distinguished by the lowest absolute (539·71), and are followed at a little distance by the Wakhi (546·78), Yazgulami (547·50), and Shughnani (549·63). The Kirghiz show the highest figure (560·98), while the Tajik (559·75) and Sistani (557·78) are not far off. The last named take a position rather remote from the Sayad (551·24) and Biloch (552·46), who are at the low end of the scale. The Darwazi (553·86) and Wanji (552·61) fall close together near the centre.

This absolute is not of primary importance, owing to the fact that the standard deviation is invariably extremely high.

*Stature.* (Table V.)

Statures do not vary very greatly. The extremes are the Özbeg (169·78) and Darwazi (160·68). Next to the Özbeg the tallest peoples are the Sistani (168·51), Shughnani (168·40), Biloch (167·89), and Tajik (167·56). At the other end of the scale, with the Darwazi, are the Wanji (163·74), Karategin (163·96), Ishkashmi (164·32), and Sayad (164·55). In stature, therefore, the Sistani and Biloch stand close together, with the Sayad at a distance, whereas in the matter of head-circumference the Sayad and Biloch stand close together, with the Sistani at a distance.

*Span.* (Table V.)

The greatest span-measurement is contributed by the Sistani (176·35), who are followed by the Shughnani (174·53), Özbeg (173·67), Biloch (173·51), Tajik (172·44), and Sayad (172·33). The other extreme is represented by the Darwazi (165·88), with the Kirghiz (168·31), Ishkashmi (168·41), and Yazgulami (168·50), standing in that order, immediately above them. The divergence between the Khirghiz and Özbeg is in this case pronounced.

*Stature-span Index.* (Table V.)

The highest index is shown by the Sayad (104·78), followed by the Sistani (104·70); the lowest by the Kirghiz (101·59). The variation, therefore, is not great, and the grouping of the remaining peoples, falling between extremes so short a distance apart, cannot be held to have any great significance.

It is worth while noting that, in the consideration of these absolutes and indices, the name of one people has remained practically unmentioned, viz. the Roshani. Of these dwellers in a secluded valley, Sir Aurel Stein measured no less than fifty-eight individuals, and their averages may therefore be taken as representing with some degree of accuracy their physical characteristics. The reason that they have played no part in the discussion lies, of course, in the fact that in every case their average lies at or near the centre of the scale. The inference is that they probably represent the main element of the bulk of the peoples under consideration in its purest form. It might be suggested that their invariable intermediate position affords evidence that they are a *mélange* of many elements. Against this point of view there are two arguments. The first is based on the secluded character of their habitat; the second, on the fact that were they a mixed people, then, on Mendelian principles, it would be more natural that they should appear among the extremes in respect of one or more characters.

*The Differential Index* (ΣΔ). (Tables VI and VII.)

The intermediate position of the Roshani, to which allusion has been made in the last paragraph, suggests that they may constitute a good starting-point in a consideration of the various differential indices. In fact, it is at once evident from the Tables (VI and VII) that they show an intimate relationship with far more of the other tribal groups than any of the rest; and, further, that in only one case, that of the Sistani, does their ΣΔ fall above 8 (8·44), their next highest ΣΔ (relating to the Sayad) being as low as 6·59.

The relationship of the Roshani, as expressed in terms of the ΣΔ appear as follows:

| | |
|---|---|
| Karategin | 3·46 |
| Shughnani | 3·83 |
| Wanji | 4·19 |
| Yazgulami | 4·86 |
| Darwazi | 4·91 } |
| Ishkashmi | 4·91 } |
| Tajik | 5·26 |
| Özbeg | 6·01 |
| Wakhi | 6·08 |

None of these ΣΔ contain a Δ which reaches 1·00, and I am assuming, therefore, that some degree of relationship may be predicated between the Roshani and the tribal groups in question.

Now two of the ΣΔ fall below 4·00, and therefore indicate that the relationship is very close; the indices in question relate to the Karategin and Shughnani. But the ΣΔ expressing the relationship of the Karategin to the Shughnani is comparatively high, amounting to *5·31*; and, when the Δ which compose it are examined, it is seen that the figures for bizygomatic-breadth and total facial index are in each case over 0·90, and suggest that the superior euryprosopism of the Karategin almost constitutes an essential difference. Now the divergence in facial proportions exhibited by the Karategin and Shughnani, lying respectively to the north-west and south of the Roshani, with whom they both appear to be far more intimately connected than with each other, immediately suggests that a comparison of each with the other peoples related to the Roshani may produce results of value. In this comparison I omit, for the moment, the Özbeg and the Tajik; in doing so I freely admit that I am making an anticipation, but I think the main argument will be a little less obscure if the factors are reduced as far as possible.

First, as regards the Karategin. Their relationships, apart from the Roshani and Shughnani, as expressed in ΣΔ, are as follows (figures in italics indicate that the ΣΔ includes a Δ above 1·00):

| | |
|---|---|
| Wanji | 2·68 |
| Darwazi | 4·07 |
| Yazgulami | 4·48 |
| Wakhi | *7·55* |
| Ishkashmi | *7·43* |

The close connexion of the Karategin with, especially, the Wanji, and also the Darwazi and Yazgulami, is evident; while their pronounced differentiation from the Wakhi and Ishkashmi is based in the main on their greater euryprosopism.

Second, as regards the Shughnani:

| | |
|---|---|
| Wakhi | 3·82 |
| Ishkashmi | 4·87 |
| Darwazi | *7·21* |
| Yazgulami | *7·43* |
| Wanji | *7·69* |

The figures, therefore, make it clear that the Roshani are the connecting link between two groups, one to the north-west, distinguished by comparative euryprosopism, the other to the south, distinguished by comparative leptoprosopism. These groups are: *Euryprosopic*, Karategin, Wanji, Darwazi, Yazgulami (in increasing

degree of euryprosopism according to index); and *Leptoprosopic*, Ishkashmi, Shughnani, and Wakhi (in increasing degree of leptoprosopism).

It is interesting, in connexion with the facial measurements, to consider the nasal absolutes and indices of these two groups. Taking the Roshani as the standard, and tabulating the sums of the three Δ (for nasal-length, nasal-breadth, and nasal index) which express their relationship to the rest, we have the following result:

*Roshani.*

| | | | |
|---|---|---|---|
| Shughnani | 0·71 | Darwazi | 0·90 |
| Ishkashmi | 0·85 | Yazgulami | 0·99 |
| Wakhi | 0·99 | Wanji | 1·39 |
| Karategin | 0·71 | | |

Now if we examine the figures which express the relationship of the Wakhi to the Wanji in this particular (these two tribes being the most divergent from the Roshani in each group), we find that the sum of the Δ for the nasal-measurements and index amounts to 2·42, a very high total. This suggests that the progressive divergence of the two groups in respect of facial-measurements is accompanied by a progressive divergence in nasal-measurements.

In previous examinations of the physical characters of Central-Asiatic peoples, I have always found the absolute measurements for nasal-breadth of some significance, in fact of greater significance than the nasal index, owing to the invariably high figure attained by the standard deviation of the latter.

Now the nasal-breadths of the tribal groups immediately under consideration are as follows:

| | |
|---|---|
| Ishkashmi | 29·35 |
| Wakhi | 28·41 |
| Roshani | 27·88 |
| Shughnani | 27·37 |
| Karategin | 26·73 |
| Darwazi | 26·08 |
| Yazgulami | 25·80 |
| Wanji | 25·04 |

It is at once apparent that the evidence derived from a consideration of nasal-breadth supports that supplied by the facial-measurements. It is true that the Shughnani fall on the 'wrong' side of the Roshani, but the main grouping is not disturbed. The important fact is that the figures show that the tendency towards euryprosopism is combined with slender nostrils, and vice versa. I should like to suggest here that an index expressing the proportion of nasal-breadth to bizygomatic-breadth might be extremely useful in the elucidation of the racial affinities of Central-Asiatic tribes. That, however, is by the way; the main fact is that, in this particular group of peoples, breadth of face appears to be correlated with narrowness of nose and vice versa.

To take another point of view: if we examine the various Δ (of nasal-length, breadth, and index respectively) which express the relationship of the Roshani to the other tribes immediately under consideration, we find that the main factor which differentiates the Wakhi-Ishkashmi-Shughnani from the Roshani is a greater nasal-length, while the main feature which differentiates the Karategin-Darwazi-Yazgulami-Wanji from the Roshani is a lesser nasal-breadth.

Below are the nasal Δ indicating the difference between the Roshani and the other tribal groups under consideration.

| | *Wanji.* | *Yazgulami.* | *Darwazi.* | *Karategin.* | *Shughnani.* | *Ishkashmi.* | *Wakhi.* |
|---|---|---|---|---|---|---|---|
| N.L. .. .. | 0·42 | 0·17 | 0·08 | 0·09 | 0·34 | 0·47 | 0·59 |
| N.B. .. .. | 0·88 | 0·49 | 0·47 | 0·31 | 0·12 | 0·36 | 0·14 |
| N.I. .. .. | 0·09 | 0·33 | 0·35 | 0·31 | 0·25 | 0·02 | 0·26 |
| | 1·39 | 0·99 | 0·90 | 0·71 | 0·71 | 0·85 | 0·99 |

All, as far as index is concerned, display greater leptorrhinity than the Roshani, except the Wanji and Ishkashmi. Ishkashmi noses are both longer and broader than Roshani noses, while Wanji noses are both shorter and narrower; in each case the index is more platyrrhine than that of the Roshani. The marked differentiation between the two groups is well illustrated by comparing the nasal Δ expressing the relation between the Wakhi and Wanji, who in respect of nasal characters stand farthest from the Roshani in their respective groups. The figures are:

| | |
|---|---|
| N.L. . . . . . . | 1·09 |
| N.B. . . . . . . | 0·97 |
| N.I. . . . . . . | 0·36 |
| | 2·42 |

The figures for stature give similar results. The Darwazi, Wanji, and Karategin are the three shortest peoples measured. The Shughnani and Wakhi are both taller than the Roshani. The Ishkashmi, it is true, are, unexpectedly, shorter than the Yazgulami, who are themselves slightly shorter than the Roshani. The position of the Ishkashmi alone disturbs the otherwise perfect correspondence which the figures for stature show with those for face- and nose-measurements.

Cephalic index, again, shows similar results. The Wakhi, Ishkashmi, and Shughnani are more brachycephalic than the Roshani; the Darwazi, Wanji, Karategin, and Yazgulami are more dolichocephalic.

If the ΣΔ which relate the various members of each group one to the other be examined, it will be seen that the Karategin, Wanji, Darwazi, and Yazgulami are interrelated by ΣΔ which never reach 5·00. The same is true of the Shughnani, Wakhi, and Ishkashmi. This is a pretty certain indication of the comparative homogeneity of each group.

On the other hand, omitting for the moment the Karategin, the ΣΔ expressing the relationship between any one member of one group with any one member of another never falls as low as 7·00, and frequently rises to over 9·00. Moreover, in no case does the ΣΔ fail to contain a Δ amounting to 1·00 or over.

The Karategin alone show a ΣΔ which brings them into relationship with the other group, viz. with the Shignani. The figure 5·31 is rather high, but it contains no Δ of 1·00 or over (though the Δ for facial-breadth reaches 0·91), but their other ΣΔ relate them far more closely with the Wanji, Darwazi, and Yazgulami.

It would appear, therefore, that we have on each side of the Roshani two groups of interrelated peoples distinguished by the following characteristics (the terms are, of course, used relatively):

1. To the north and north-west, the Yazgulami, Wanji, Darwazi, and Karategin; relatively dolichocephalic, narrow-nosed, euryprosopic, and short-statured.
2. To the south and south-east, the Shughnani, Ishkashmi, and Wakhi; relatively brachycephalic, long-nosed, leptoprosopic, and tall-statured.

Now if the affinities of the Özbeg, so far as they are displayed in terms of ΣΔ, be examined, it will be seen that the people standing nearest to them are the Wanji (index *5·42*), followed by the Yazgulami (5·61), Roshani (6·01), Karategin (6·17), Darwazi (*7·83*), and Shughnani (*8·00*). The Özbeg are taller than any of the Wanji-Yazgulami-Karategin-Darwazi group, and more brachycephalic; in fact, as regards the Darwazi, the difference in head-breadth and index is marked. But the principal features which differentiate the Özbeg from the Shughnani-Ishkashmi-Wakhi group are their greater euryprosopism and their shorter noses.

It is clear from the figures that the Özbeg stand comparatively close to the former group, but are strongly differentiated from the latter. Further, that the respects in which they differ most are face- and nose-dimensions. The Özbeg, in fact, exhibit in the extreme that combination of breadth of face and narrowness of nose which is one of the chief points of difference between the north-western group and the south-eastern. The inference is that the *Homo Alpinus* type characteristic of the Pamirs has, towards the north and west, undergone modification owing to contact with that branch of the Mongolo-Turki family of which the Özbeg are members.

The Tajik next call for consideration, and it is extremely interesting to note that they stand equally closely related to the Shughnani on the one hand and to the Kirghiz on the other. Their affinities, expressed in terms of ΣΔ, as follows:

| | |
|---|---|
| Shughnani | 4·75 |
| Kirghiz | 4·85 |
| Roshani | 5·62 |
| Wakhi | 6·79 |
| Ishkashmi | 7·18 |
| Karategin | 7·19 |

The figures suggest, in the first instance, that the Tajik appear to be more closely akin to the Shughnani-Roshani-Wakhi group than to the Karategin-Wanji-Darwazi. It will be found also, on examination, that the Tajik, in respect of nasal-breadth and nasal index, stand between the Shughnani (and their relations) and the Kirghiz, who are far more platyrrhine. This intermediate position, it is true, does not hold good for all characters, but a general survey of the evidence seems to indicate that the Tajik are basically *Homo Alpinus*, but have been modified by contact with the broad-nosed Mongolian as exemplified in the Kirghiz.

As for the Kirghiz themselves, it is only with the Tajik that they display any close degree of relationship. Beside their ΣΔ for this people, they show only one under 7·00, and that relates to the Roshani. The figure is 6·00, but the Δ for nasal-breadth and nasal index amount to 1·43 and 1·24 respectively, and indicate a significant degree of relative platyrrhinity on the part of the Kirghiz.

It is interesting to note the very high figure of the ΣΔ expressing the relation of the Kirghiz to the Özbeg, both peoples being usually classed as Mongolo-Turki. It amounts to no less than 8·63. The cause lies, in the main, in the great difference between the nasal proportions of the two. While both are short-nosed, the Kirghiz are very broad-nosed and the Özbeg are very narrow-nosed. The figures are:

| — | *Kirghiz.* | *Özbeg.* | Δ. |
|---|---|---|---|
| N.L. | 45·02 | 44·44 | 0·18 |
| N.B. | 34·20 | 26·56 | 1·74 |
| N.I. | 77·14 | 59·96 | 1·23 |

This appears to constitute an essential difference, and it is further interesting to consider the total facial-measurements. The latter are:

| — | *Kirghiz.* | *Özbeg.* | Δ. |
|---|---|---|---|
| Biz. | 131·36 | 135·33 | 0·44 |
| F.L. | 116·89 | 113·89 | 0·34 |
| F.I. | 89·43 | 84·47 | 0·53 |

While the difference is not so great that it can be considered essential, the figures show that the Özbeg have broader and shorter faces than the Kirghiz, and are more euryprosopic. Thus the Özbeg combine relative leptorrhinity with relative euryprosopism, and the Kirghiz relative platyrrhinity with relative leptoprosopism. It will be remembered that the Karategin-Darwazi-Wanji-Yazgulami group showed a tendency to differ from the Shughnani-Ishkashmi-Wakhi group in the same manner, though not in the same degree. This tendency for narrowness of nostril to be linked with breadth of face, which I have noticed before, suggests that an index composed of these two absolutes might be useful in determining the affinities at any rate of Asiatic peoples.

Three peoples yet remain to be discussed, the Sistani, Sayad, and Biloch, inhabiting the region about the terminal waters of the Helmand river, and separated by a comparatively wide geographical area from the peoples hitherto under examination. The ΣΔ show at once that they are obviously very closely connected. They are as follows:

| | |
|---|---|
| Sayad-Biloch | 2·92 |
| Sayad-Sistani | 4·17 |
| Sistani-Biloch | 4·78 |

It is true that the ΣΔ for the Sistani and Biloch includes a Δ amounting to over 1·00; but this relates to span-measurement, a character which seems to be of comparatively little significance among these peoples. In the present case, considering the very close correspondence in all other respects which prevails between the measurements of Sistani and Biloch respectively, it need not be taken to indicate a radical difference.

A survey of the measurements of this group immediately reveals one significant fact: of all the peoples measured, they have the longest[1] and narrowest heads, and the most dolichocephalic indices.

This fact differentiates them in very marked degree from the Roshani-Shughnani-Ishkashmi-Wakhi group, who are definitely brachycephalic. Moreover, their bizygomatic-breadth is greater, and their facial indices lower, than the tribes constituting this group, so that they are also definitely more euryprosopic. On the other hand, their nasal dimensions and indices fall astride those of the group above mentioned.

When we compare them with the Karategin-Wanji-Darwazi group we find that both in head-length, head-breadth, and cephalic index they are more dolichocephalic—often to a degree which may be assumed to be significant. Further, that their noses are markedly longer and markedly broader. But as regards nasal-index, the results are extremely interesting. The table below gives the absolutes and indices seriated in diminishing sequence:

| N.L. | | N.B. | | N.I. | |
|---|---|---|---|---|---|
| Sistani | 50·31 | Sayad | 28·26 | Wanji | 60·87 |
| Sayad | 49·35 | Biloch | 28·11 | Sayad | 57·68 |
| Biloch | 49·00 | Sistani | 27·36 | Biloch | 57·54 |
| Darwazi | 47·24 | Karategin | 26·73 | Karategin | 56·87 |
| Karategin | 47·19 | Darwazi | 26·08 | Darwazi | 55·86 |
| Wanji | 44·74 | Wanji | 25·04 | Sistani | 54·48 |

Usually it is the nasal-breadth which is the more potent factor in determining the index, and is, as I have found before, a more significant feature than either length or index in a consideration of Asiatic peoples. In this case, as regards index, the Sayad and Biloch fall together, it is true, on the platyrrhine side of the Karategin and Darwazi; but the Sistani, who ought, to be true to their group, to stand on the platyrrhine side, appear as the most leptorrhine; while the Wanji, conversely, appear as the most platyrrhine, although their nasal-breadth is by far the least. This result is due to the great length of the Sistani nose and the extreme shortness of the Wanji nose. But it must be remembered that in these respects both Sistani and Wanji are true to their respective groups.

Apart, therefore, from a superior degree of dolichocephaly, the group under consideration differs from the Karategin-Darwazi-Wanji group in having both longer and broader noses.

As regards facial-breadth and index, however, there is not a great difference between the two, and the individual figures bridge one another.

In summarizing, I shall allude to the Roshani-Shughnani-Ishkashmi-Wakhi group as group A, to the Karategin-Darwazi-Wanji-Yazgulami group as group B,[2] and to the Sistani-Sayad-Biloch group as group C.

Group C, therefore, exhibits a degree of dolichocephaly which, both in absolutes and index, differentiates it fundamentally from group A and significally from group B. In nasal features it approximates to group A, but differs strongly from group B. In facial features it approximates to group B, but differs from group A. In two points, therefore, as a group, it lies nearer group B than group A. In dealing with this group, to save space, I have given only the results derived from an examination of the ΣΔ and of the various Δ which compose them. The ΣΔ will be found in Table VII.

It will be well, here, to anticipate what remarks I may have to make on the subject of 'descriptive characters'

[1] As a matter of fact the Tajik show a slightly higher mean for head-length than the Biloch, but rank below both the Sayad and Sistani.

[2] I have omitted, so far, any allusion to the Yargulami in my comparison of the Sistani and their congeners with the group to which they belong, because, as their various ΣΔ show, they differ so widely as to be negligible.

in order to call attention to another feature which differentiates this group very strongly from either group A or group B. The members of group C are the only people (with the exception of the Kirghiz) who show any tendency to skin-pigmentation. While other groups show 100 per cent. of members described as 'white-rosy', the Sistani, Sayad, and Biloch show a major percentage of individuals described as 'brownish-white'. The figures are as follows: Sistani 64 per cent., Sayad 71 per cent., Biloch 86 per cent.

These figures are highly significant, not only as marking off this group very clearly from the others, but as suggesting the possible presence of an Indo-Afghan strain. As mentioned above, the Kirghiz alone of the other peoples under consideration show a tendency towards pigmentation; but the number of brownish-white individuals amounts only to 7 per cent., while a consideration of the ΣΔ produces results which practically preclude any relationship between them and group C.

In order to provide some comparison between the measurements taken by Sir Aurel Stein upon this journey and those obtained on his previous expedition (see *Serindia*, vol. iii, and *Journal of the Royal Anthropological Institute*, vol. xlii, 1912), I have calculated the differential indices for all of the former with five selected groups of the latter, viz. 19 Wakhi, 22 Chitrali, 28 Mastuji, 18 Kāfirs, and 38 Kirghiz. To take the Kirghiz first. This group of 38 individuals shows little or no relationship to any of the peoples measured on the last expedition, the ΣΔ ranging from 10·92 (Karategin) to 20·27 (Sistani). I am omitting the group of 54 Kirghiz measured on the last journey, but in regard to these the ΣΔ amounts to 9·52. This is a most remarkable fact, and seems to imply that the two groups of Kirghiz have little in common save the name. On an examination of the factors which compose the ΣΔ, it is seen that no less than three amount to more than 1·00, viz. those for bizygomatic-breadth, facial index, and upper facial index, indicating that the Kirghiz measured on the previous journey were far more euryprosopic than those encountered on the last expedition. Further, they are noticeably broader-headed and more brachycephalic; their noses are also longer and broader, though the indices of the two groups fall close together, and show them to be the most platyrrhine of all the peoples measured by Sir Aurel Stein.

Now, since the group first measured constitutes the extreme, not only in platyrrhinity, but also in brachycephaly and euryprosopism, it is a fair inference that the group measured last has been influenced by contact with Alpine or Iranian stock. Hence its comparatively close affinity with the Tājik and, to a less degree, with the Roshani. Now it is clear that the Alpine stock is distinguished by relatively broad nostrils, so an admixture of this element would not disturb the nasal proportion so much as the facial and cranial.

Another interesting point is that this extreme platyrrhinity of the first group of Kirghiz, supported by the only slightly less platyrrhinity of the second group, when compared with the nasal-measurements and index of the Özbeg, reinforces very strongly the view that there are two definitely divergent Mongolo-Turki stocks in Central Asia: one very broad-nosed and relatively very platyrrhine; the other very narrow-nosed and, though also relatively short-nosed, comparatively leptorrhine.

On his previous journey, Sir Aurel Stein also took measurements of a small group of Wakhi, 19 in all, on the Taklamakan slope. I shall refer to them as Wakhi (1). On the present journey he secured measurements of no less than 54 farther in the hills. These I shall mention as Wakhi (2). Now the first series was small, and we are brought up against the question of random sampling, but nevertheless the difference between the two groups is very marked. The differential index amounts to no less than 8·99, and contains two Δ over 1·00, viz. those for nasal-breadth and nasal index, Wakhi (1) being broader-nosed and more platyrrhine than Wakhi (2). Further, Wakhi (1) are broader in face, more euryprosopic than Wakhi (2). Now in all these respects Wakhi (1) hold an intermediate position between Wakhi (2) and the peoples on the edge of the Taklamakan desert, whom in my previous survey I regarded as the nucleus of what I termed the 'desert group': the inhabitants of Koria, Turfan, Khotan, and the Charkhlik. In that survey I regarded Wakhi (1) as an extension of the desert group into the Pamirs, modified by contact with what I called the 'Pamir group', of which the nucleus was the Sarikoli, Mastuji, and Pakhpo. I think that my point of view was wrong. The measurements of the group Wakhi (2) show that the Wakhi as a whole, with the Shughnani, Ishkashmi, and Roshani, constitute the true 'Pamir group', and are more truly representative of the *Homo Alpinus* type; while Wakhi (1) represent an extension of this type towards the 'desert group', who have been modified by contact with that particular branch of the Mongolo-Turki stock which is represented by the Kirghiz, especially the group of Kirghiz first measured, which I will call Kirghiz (1). The group of Kirghiz measured on the last expedition, which I will call Kirghiz (2), take their place as a branch of this Mongolo-Turki people who have been modified by contact with the Pamir group.

The position of the Wakhi will perhaps become a little plainer if we consider those tribes, measured on the last expedition, which according to ΣΔ fall nearest to Wakhi (1). They are as follows:

| | |
|---|---|
| Kirghiz (2) | *4·48* |
| Tajik | *6·05* |
| Roshani | *6·57* |
| Shughnani | *8·71* |
| Ishkashmi | *9·13* |
| Wakhi (1) | *9·41* |

The essential feature in which Wakhi (1) differ from Kirghiz (2) is length of nose, Kirghiz (2) being far shorter-nosed (and noticeably more platyrrhine). The essential features in which Wakhi (1) differ from the Roshani, Shughnani, Ishkashmi, and Wakhi (2) are nasal-breadth and nasal index, these last-named tribes being far narrower-nosed and more leptorrhine.

There is no great difference in any feature between the Tajik and Wakhi (1), the most noticeable being in nasal length and breadth, the Tajik being at the same time shorter-nosed, narrower-nosed, and more leptorrhine.

The tribes nearest related to the Mastuji and Chitrali, according to the differential index, are the following (where a ΣΔ contains a Δ of 1·00 or over, the physical character to which it relates is mentioned in brackets):

*Chitrali.*

| | |
|---|---|
| Tajik | 4·56 |
| Roshani | *6·45* (N.B.) |
| Shughnani | *6·56* (N.B.) |
| Ishkashmi | *7·35* (H.L., C.I.) |
| Kirghiz (2) | *7·35* (N.L.) |
| Wakhi (2) | *7·54* (N.B., N.I.) |

*Mastuji.*

| | |
|---|---|
| Tajik | 5·61 |
| Kirghiz (2) | *5·70* (Biz., U.F.L.) |
| Roshani | *6·70* (N.B., N.I.) |
| Shughnani | *8·06* (N.B., N.I.) |

The same difference, therefore, exists between the Chitrali and Mastuji on the one hand, and the Roshani-Shughnani-Ishkashmi-Wakhi (2) on the other, as between Wakhi (1) and that group, viz. their noses are broader and more platyrrhine, and in several cases the Δ for these characters rises above 1·00. On the other hand, Kirghiz (2) are shorter-nosed and more platyrrhine than either of them, though the chief feature which differentiates the Mastuji from the Kirghiz is the extremely narrow face of the former (a characteristic which they share with the Kafir). The inference is that above all the Roshani, who show so many affinities with the surrounding peoples in spite of the secluded nature of their habitation, probably represent in purest form the original population of the whole region; the true *Homo Alpinus* type. To west (Tajik) and east (Taklamakan fringe) this type has been modified in various degrees by contact with a broad-nosed Mongolo-Turki type. The Karategin-Wanji group, while having basic affinities with the main Pamir stock, have been modified by contact with a narrow-nosed branch of Mongoloid peoples. The Sistani-Sayad group are basically Indo-Persian or Indo-Afghan, but contain, nevertheless, a leaven of the old Pamir strain.

*Descriptive Characters.* (Table VIII.)

It will be as well to say a word on the various 'descriptive characters' of the peoples under consideration. These characters are, of course, from one point of view less satisfactory than measurements. In the first place they are not exact, in so far as they depend on the eye of the observer, whose standard may be affected by the observations taken on the people last studied. Further, the only method of comparing different series of observations is by means of percentages, a system which may give misleading results in the case of a small series. In the present instance, for example, the number of Özbeg observed amounts only to ten individuals. In the percentage, therefore, each individual counts as ten. One is described as 'fair-haired', and consequently the figures

show 10 per cent. of the Özbeg as fair-haired. This is probably an entirely false proportion, due to random sampling, which would be corrected if data could be obtained from a greater number of individuals. Nevertheless, these characters are often of considerable value as indicating certain definite tendencies.

*Skin-colour.*—I have already dealt with skin-colour, and will merely recapitulate. All peoples show 100 per cent. of 'white-rosy' complexions save for the following exceptions:

| | |
|---|---|
| Kirghiz . . . | 7 per cent. brownish-white. |
| Sistani . . . | 64 " " " |
| Sayad . . . | 71 " " " |
| Biloch . . . | 86 " " " |

The measurements have shown that no connexion can be found between the Kirghiz and the others; consequently the tendency to pigmentation on the part of the Kirghiz, which, after all, is comparatively slight, must be due to another cause. Referring to the Kirghiz measured on the previous expedition, we find that the tendency is far stronger, and is shared to some extent by members of the Taklamakan desert population, who are also broad-nosed. This tendency to pigmentation, therefore, is probably natural to the broad-nosed variety of Mongolo-Turki peoples, and has been acquired from them, though in lesser degree, by the desert population.

The Sistani-Sayad-Biloch combination, however, show a far higher percentage, which is probably due to a strong Indo-Persian or Indo-Afghan strain.

*Eye-colour.*—Three categories: dark, medium, and light (including blue). The tribes of which the bulk of the population may be classed as dark-eyed are the following:

| | Per cent. |
|---|---|
| Biloch . . . . . | 97 |
| Sistani . . . . . | 90 |
| Özbeg . . . . . | 90 |
| Wanji . . . . . | 74 |
| Sayad . . . . . | 65 |

None of these include a single light-eyed individual. The eye-colour, therefore, of the Biloch-Sistani-Sayad combination agrees with the skin-colour. To continue:

| | Per cent. |
|---|---|
| Roshani . . . . . | 61 |
| Darwazi . . . . . | 60 |

Both of these tribes include light-eyed individuals, and it is necessary to consider the percentages of the 'medium' and 'light' categories before deciding on the relative position of the two. The figures are:

| | Medium. Per cent. | Light. Per cent. |
|---|---|---|
| Roshani . . . . | 25 | 14 |
| Darwazi . . . . | 32 | 8 |

It is clear that the Darwazi are, on the whole, more consistently dark-eyed than the Roshani.

That concludes the series of peoples of whom more than 50 per cent. of individuals are definitely dark-eyed. It includes the whole of the Sistani-Sayad-Biloch group; the Özbeg; two of the Wanji-Darwazi-Karategin-Yazgulami group; and one of the Roshani-Shughnani-Ishkashmi-Wakhi group—the high percentage of dark eyes among the Roshani being rather countered by a percentage of light-eyed individuals which, as will appear later, is relatively very high.

If we take the next highest percentage of dark eyes, we have:

| | Per cent. |
|---|---|
| Karategin . . . . . | 44 |
| Kirghiz . . . . . | 41 |
| Yazgulami . . . . . | 40 |

Of these the Karategin show only 4 per cent. of light-eyed individuals, and the Yazgulami none at all. The Wanji-Darwazi-Karategin-Yazgulami group is, therefore, complete, and although it is overlapped by the Roshani of the Pamir group, yet the relatively high percentage of light eyes among the last serves to differentiate them.

To consider, now, eye-colour from the reverse point of view. It will save time if I give the results in the order of the combined percentages of 'light' and 'medium' analysed in subsidiary columns:

| | *Light and Medium.* | *Medium.* | *Light.* |
|---|---|---|---|
| | Per cent. | Per cent. | Per cent. |
| Tajik .. .. .. .. | 88 | 63 | 25 |
| Ishkashmi .. .. .. | 72 | 49 | 23 |
| Wakhi .. .. .. | 72 | 70 | 2 |
| Shughnani .. .. .. | 63 | 56 | 7 |
| Kirghiz .. .. .. | 60 | 54 | 6 |
| Yazgulami .. .. .. | 60 | 60 | 0 |
| Karategin .. .. .. | 56 | 52 | 4 |
| Darwazi .. .. .. | 40 | 32 | 8 |
| Roshani .. .. .. | 39 | 25 | 14 |

The first column of this table shows that the Tajik are the lightest-eyed, followed by the Ishkashmi, Wakhi, and Shughnani. And although the Roshani fall so low in the combined scale, yet they include a percentage of light-eyed individuals (as the last column proves) twice as high as the Shughnani.

This table again supports the view that the particular group of Kirghiz measured on this expedition have been much modified by contact with the Pamir group, and helps to explain the similarity which their measurements show to those of the Tajik.

*Hair-colour.*—In the whole series only one individual is described as 'black-haired', viz. a Biloch. I shall, therefore, consider only three categories: dark-brown, light-brown, and fair.

Seven peoples, then, show 100 per cent. of individuals as dark-brown. They are: Biloch, Sistani, Sayad, Karategin, Darwazi, Yazgulami, and, rather surprisingly, Tajik. These are followed by:

Kirghiz . . . . 98 per cent. (2 per cent. 'fair').
Wanji . . . . 96 " " (4 " " " ).

In each case the 'fair' percentage is represented by a single individual. The grouping supports that suggested by measurements, skin-colour, and eye-colour, at least as far as the Biloch-Sayad-Sistani and the Darwazi, &c., are concerned, the former being more heavily pigmented than the latter. Again the Tajik fall near the Kirghiz, though it is rather surprising to find the former showing 100 per cent. of dark-brown hair combined with 25 per cent. of light eyes.

It is clear, therefore, that the Pamir group must fall together. The percentages are as follows:

| | *D.B.* | *L.B.* | *F.* |
|---|---|---|---|
| | Per cent. | Per cent. | Per cent. |
| Shughnani .. .. .. | 92 | 3 | 5 |
| Roshani .. .. .. | 91 | 2 | 7 |
| Wakhi .. .. .. | 89 | 7 | 4 |
| Ishkashmi .. .. .. | 85 | 3 | 12 |

I omit any consideration of the Özbeg. Only ten were observed, one of whom was 'fair'. This single individual would, therefore, amount to 10 per cent., almost certainly a perfectly false proportion for this people.

*Hair-growth.*—Three categories: abundant, medium, and scanty. The most striking feature of this table is that, for once, the Tajik and Kirghiz appear as the extremes; the Tajik showing 100 per cent. of individuals with 'abundant' hair-development, and the Kirghiz 78 per cent. with 'scanty'. Omitting the Özbeg, and regarding the 'scanty' end of the scale, the Kirghiz are followed by the Biloch, Sistani, and Sayad, with percentages of 29, 22, and 18 respectively. These three peoples also, apart from the Kirghiz, show by far the lowest percentages in the 'abundant' class, and their unity as a group is thus maintained.

The other groups straddle one another, their order in terms of 'scanty', 'medium', and 'abundant' being as follows:

| *Scanty.* | Per cent. | *Medium.* | Per cent. | *Abundant.* | Per cent. |
|---|---|---|---|---|---|
| Roshani | 16 | Wakhi | 21 | Yazgulami | 95 |
| Shughnani | 15 | Karategin | 15 | Darwazi | 88 |
| Darwazi | 8 | Ishkashmi | 9 | Ishkashmi | 88 |
| Yazgulami | 5 | Wanji | 9 | Wanji | 87 |
| Karategin | 4 | Roshani | 7 | Karategin | 81 |
| Wanji | 4 | Shughnani | 7 | Roshani | 78 |
| Wakhi | 4 | Darwazi | 4 | Shughnani | 78 |
| Ishkashmi | 3 | Yazgulami | 0 | Wakhi | 75 |

These figures are not very easy to assess; but I think they show that, on the whole, the hair-development of the Karategin-Darwazi-Wanji-Yazgulami group is superior to that of the Pamir group. At least they prove that, whereas the Darwazi group (for short) stood between the Pamir group and the Sistani group (for short) in the question of pigmentation, yet in hair-development the Darwazi group are closely connected with the Pamir group and take a position more remote from the Sistani group than the latter. Hair-development tends to be a very persistent character, and is, therefore, highly significant. The inference, therefore, is that the pigmentation of the Darwazi group is not due to any affinity with the Sistani group, but, as the measurements indicate, to contact with the Özbeg, who, in spite of the small number observed, appear to be predominantly dark-eyed and dark-haired.

NOTE.—The original cards on which individual measurements were recorded have been deposited in the library of the Royal Anthropological Institute of Great Britain and Ireland.

N.B.—In the subjoined tables the indices are symbolized as follows:

| | |
|---|---|
| M. = mean. | E.M. = probable error of M. |
| $\sigma$ = standard deviation. | E$\sigma$ = probable error of $\sigma$. |
| C. = coefficient of variability. | E.C. = probable error of C. |

(For detailed explanation, see *Journ. Roy. Anth. Inst.*, xlii. p. 451.)

## TABLE I

| | | Head-length. | | | | | | Head-breadth. | | | | | | Cephalic Index. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. |
| 1. Kirghiz .. .. | 54 | 184·00 | 0·63 | 6·86 | 0·44 | 3·73 | 0·24 | 154·59 | 0·64 | 6·92 | 0·45 | 4·48 | 0·29 | 84·04 | 0·41 | 4·48 | 0·29 |
| 2. Özbeg .. .. | 9 | 179·22 | 1·22 | 5·45 | 0·87 | 3·04 | 0·48 | 153·44 | 1·02 | 4·55 | 0·72 | 2·97 | 0·47 | 86·91 | 0·90 | 4·21 | 0·64 |
| 3. Tajik .. .. | 16 | 185·19 | 0·73 | 4·35 | 0·52 | 2·35 | 0·28 | 154·06 | 0·72 | 4·25 | 0·51 | 2·76 | 0·33 | 83·14 | 0·35 | 2·07 | 0·25 |
| 4. Karategin .. | 26 | 180·85 | 0·92 | 6·94 | 0·65 | 3·84 | 0·36 | 148·46 | 0·72 | 5·42 | 0·51 | 3·65 | 0·34 | 82·37 | 0·50 | 3·81 | 0·36 |
| 5. Darwazi .. .. | 24 | 162·58 | 0·82 | 5·95 | 0·58 | 3·26 | 0·32 | 145·54 | 0·69 | 5·00 | 0·49 | 3·44 | 0·33 | 79·88 | 0·45 | 3·30 | 0·32 |
| 6. Wanji .. .. | 23 | 181·43 | 0·74 | 5·24 | 0·52 | 2·89 | 0·29 | 149·35 | 1·01 | 7·22 | 0·72 | 4·83 | 0·48 | 82·41 | 0·71 | 5·05 | 0·50 |
| 7. Yargulami .. | 20 | 178·90 | 0·81 | 5·39 | 0·58 | 3·01 | 0·32 | 148·45 | 0·99 | 6·54 | 0·70 | 4·41 | 0·47 | 83·03 | 0·61 | 4·07 | 0·43 |
| 8. Roshani .. .. | 58 | 180·59 | 0·56 | 6·31 | 0·40 | 3·49 | 0·22 | 149·97 | 0·49 | 5·58 | 0·35 | 3·72 | 0·23 | 83·27 | 0·34 | 3·79 | 0·24 |
| 9. Shughnani .. | 40 | 179·22 | 0·73 | 6·62 | 0·50 | 3·70 | 0·28 | 150·00 | 0·63 | 5·89 | 0·44 | 3·93 | 0·30 | 83·78 | 0·41 | 3·85 | 0·29 |
| 10. Ishkashmi .. | 34 | 174·71 | 0·68 | 5·91 | 0·48 | 3·38 | 0·28 | 149·21 | 0·48 | 4·19 | 0·34 | 2·81 | 0·23 | 85·71 | 0·41 | 3·54 | 0·29 |
| 11. Wakhi .. .. | 54 | 176·74 | 0·52 | 5·63 | 0·37 | 3·13 | 0·20 | 153·50 | 0·47 | 5·12 | 0·33 | 3·34 | 0·22 | 86·89 | 0·33 | 3·58 | 0·23 |
| 12. Sistani .. .. | 37 | 186·24 | 0·76 | 6·81 | 0·53 | 3·67 | 0·29 | 142·35 | 0·43 | 3·84 | 0·30 | 2·69 | 0·20 | 76·50 | 0·28 | 2·55 | 0·20 |
| 13. Sayad .. .. | 33 | 185·55 | 0·69 | 5·83 | 0·48 | 3·14 | 0·26 | 143·18 | 0·55 | 4·62 | 0·39 | 3·23 | 0·27 | 77·21 | 0·30 | 2·58 | 0·21 |
| 14. Biloch .. .. | 35 | 184·83 | 0·62 | 5·50 | 0·44 | 2·98 | 0·24 | 141·97 | 0·50 | 4·51 | 0·35 | 3·11 | 0·25 | 76·81 | 0·29 | 2·53 | 0·20 |

## TABLE II

| | | Nasal-length. | | | | | | Nasal-breadth. | | | | | | Nasal Index. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. |
| 1. Kirghiz .. .. | 55 | 45·02 | 0·37 | 4·18 | 0·26 | 9·15 | 0·59 | 34·20 | 0·31 | 3·41 | 0·22 | 9·97 | 0·63 | 77·14 | 1·05 | 11·50 | 0·74 |
| 2. Özbeg .. .. | 9 | 44·44 | 0·41 | 1·84 | 0·29 | 4·14 | 0·66 | 26·56 | 0·62 | 2·75 | 0·44 | 10·35 | 1·65 | 59·96 | 1·79 | 7·95 | 1·26 |
| 3. Tajik .. .. | 14 | 47·50 | 0·52 | 2·91 | 0·37 | 6·13 | 0·78 | 31·43 | 0·41 | 2·29 | 0·29 | 7·29 | 0·93 | 66·54* | 1·36 | 7·55 | 0·96 |
| 4. Karategin .. | 26 | 47·19 | 0·35 | 2·62 | 0·25 | 5·55 | 0·52 | 26·73 | 0·31 | 2·31 | 0·22 | 8·64 | 0·81 | 56·87 | 0·83 | 6·24 | 0·58 |
| 5. Darwazi .. .. | 25 | 47·24 | 0·59 | 4·41 | 0·41 | 9·34 | 1·06 | 26·08 | 0·34 | 2·50 | 0·24 | 9·59 | 1·09 | 55·86 | 1·19 | 8·80 | 0·84 |
| 6. Wanji .. .. | 23 | 44·74 | 0·42 | 2·99 | 0·30 | 6·68 | 0·66 | 25·04 | 0·34 | 2·41 | 0·24 | 9·62 | 0·96 | 60·87 | 0·99 | 7·05 | 0·70 |
| 7. Yargulami .. | 20 | 46·00 | 0·38 | 2·49 | 0·27 | 5·41 | 0·58 | 25·80 | 0·47 | 3·12 | 0·33 | 12·09 | 1·29 | 56·31 | 1·18 | 7·84 | 0·84 |
| 8. Roshani .. .. | 58 | 46·76 | 0·33 | 3·77 | 0·24 | 8·06 | 0·50 | 27·88 | 0·25 | 2·86 | 0·18 | 10·26 | 0·64 | 59·98 | 0·68 | 7·67 | 0·47 |
| 9. Shughnani .. | 40 | 48·62 | 0·42 | 3·93 | 0·30 | 8·08 | 0·61 | 27·37 | 0·33 | 3·13 | 0·24 | 11·44 | 0·86 | 56·89 | 1·01 | 9·43 | 0·71 |
| 10. Ishkashmi .. | 34 | 49·38 | 0·47 | 4·04 | 0·33 | 8·18 | 0·67 | 29·35 | 0·35 | 2·99 | 0·24 | 10·19 | 0·83 | 60·17 | 0·97 | 8·42 | 0·69 |
| 11. Wakhi .. .. | 54 | 49·78 | 0·32 | 3·52 | 0·23 | 7·07 | 0·46 | 28·41 | 0·23 | 2·53 | 0·16 | 8·91 | 0·58 | 57·36 | 0·60 | 6·57 | 0·43 |
| 12. Sistani .. .. | 36 | 50·31 | 0·33 | 2·91 | 0·23 | 5·78 | 0·46 | 27·36 | 0·27 | 2·47 | 0·20 | 9·03 | 0·71 | 54·48 | 0·58 | 5·12 | 0·41 |
| 13. Sayad .. .. | 34 | 49·35 | 0·38 | 3·26 | 0·27 | 6·59 | 0·54 | 28·26 | 0·29 | 2·51 | 0·21 | 8·88 | 0·73 | 57·68 | 0·78 | 6·72 | 0·55 |
| 14. Biloch .. .. | 35 | 49·00 | 0·37 | 3·28 | 0·26 | 6·69 | 0·54 | 28·11 | 0·28 | 2·45 | 0·20 | 8·72 | 0·70 | 57·54 | 0·60 | 5·30 | 0·43 |

## TABLE III

| | | Facial-length. | | | | | | Bizygomatic-breadth. | | | | | | Total Facial Index. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. |
| 1. Kirghiz .. .. | 55 | 116·89 | 0·60 | 6·57 | 0·42 | 5·61 | 0·36 | 131·36 | 0·71 | 7·77 | 0·50 | 5·91 | 0·38 | 89·43 | 0·67 | 7·41 | 0·48 |
| 2. Özbeg .. .. | 9 | 113·89 | 1·34 | 5·95 | 0·95 | 5·22 | 0·83 | 135·33 | 1·05 | 4·67 | 0·74 | 3·45 | 0·55 | 84·47 | 1·23 | 5·76 | 0·87 |
| 3. Tajik .. .. | 16 | 116·75 | 1·41 | 8·36 | 1·00 | 7·16 | 0·85 | 124·37 | 1·11 | 6·59 | 0·79 | 5·30 | 0·63 | 94·03 | 1·20 | 7·09 | 0·84 |
| 4. Karategin .. | 26 | 115·81 | 0·72 | 5·43 | 0·51 | 4·69 | 0·30 | 134·27 | 0·90 | 6·78 | 0·63 | 5·04 | 0·47 | 86·71 | 0·75 | 5·64 | 0·53 |
| 5. Darwazi .. .. | 25 | 113·28 | 0·81 | 6·03 | 0·58 | 5·32 | 0·51 | 131·88 | 0·92 | 6·85 | 0·65 | 5·19 | 0·50 | 86·28 | 0·56 | 4·16 | 0·40 |
| 6. Wanji .. .. | 23 | 115·87 | 0·92 | 6·52 | 0·65 | 5·63 | 0·56 | 133·74 | 0·71 | 5·05 | 0·50 | 3·78 | 0·38 | 86·69 | 0·66 | 4·68 | 0·47 |
| 7. Yargulami .. | 20 | 110·05 | 0·91 | 6·03 | 0·64 | 5·48 | 0·58 | 131·20 | 0·81 | 5·34 | 0·57 | 4·07 | 0·43 | 84·03 | 0·80 | 5·28 | 0·56 |
| 8. Roshani .. .. | 58 | 114·17 | 0·55 | 6·21 | 0·39 | 4·88 | 0·31 | 127·12 | 0·66 | 7·43 | 0·47 | 5·84 | 0·37 | 90·30 | 0·52 | 5·84 | 0·37 |
| 9. Shughnani .. | 38 | 118·11 | 0·71 | 6·52 | 0·50 | 5·52 | 0·43 | 125·58 | 0·73 | 6·68 | 0·52 | 5·32 | 0·41 | 94·29 | 0·63 | 5·74 | 0·44 |
| 10. Ishkashmi .. | 34 | 114·79 | 0·83 | 7·15 | 0·58 | 6·23 | 0·51 | 122·50 | 0·48 | 4·14 | 0·34 | 3·38 | 0·28 | 94·03 | 0·74 | 6·58 | 0·52 |
| 11. Wakhi .. .. | 55 | 117·25 | 0·54 | 5·95 | 0·38 | 5·07 | 0·33 | 122·84 | 0·53 | 5·79 | 0·37 | 4·71 | 0·30 | 95·68 | 0·60 | 6·62 | 0·43 |
| 12. Sistani .. .. | 37 | 117·65 | 0·60 | 5·38 | 0·42 | 4·57 | 0·36 | 132·30 | 0·50 | 4·54 | 0·36 | 3·43 | 0·27 | 89·26 | 0·55 | 4·96 | 0·39 |
| 13. Sayad .. .. | 33 | 116·73 | 1·24 | 10·52 | 0·87 | 9·01 | 0·75 | 135·39 | 0·63 | 5·32 | 0·44 | 3·93 | 0·33 | 86·29 | 0·92 | 8·01 | 0·67 |
| 14. Biloch .. .. | 35 | 114·43 | 0·76 | 6·65 | 0·54 | 5·81 | 0·47 | 130·63 | 0·51 | 4·45 | 0·36 | 3·41 | 0·27 | 87·64 | 0·60 | 5·27 | 0·42 |

* 14 indices only.

TABLE IV

| | Upper Facial-length. | | | | | | | Upper Facial Index. | | | | Head-circumference. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. | M. | E.M. | σ. | Eσ. | C. | E.C. |
| 1. Kirghiz .. .. | 55 | 72·04 | 0·42 | 4·60 | 0·30 | 6·39 | 0·41 | 55·10 | 0·43 | 4·76 | 0·31 | 561·0 | 1·34 | 14·70 | 0·95 | 2·62 | 0·17 |
| 2. Ozbeg .. .. | 10 | 68·20 | 0·79 | 3·68 | 0·56 | 5·40 | 0·81 | 50·90 | 0·77 | 3·60 | 0·54 | 555·2 | 2·05 | 9·14 | 1·45 | 1·65 | 0·26 |
| 3. Tajik .. .. | 16 | 72·06 | 0·97 | 5·77 | 0·69 | 8·01 | 0·95 | 57·56 | 0·85 | 5·06 | 0·60 | 559·8 | 2·00 | 11·85 | 1·41 | 2·12 | 0·25 |
| 4. Karategin .. | 26 | 72·42 | 0·43 | 4·76 | 0·31 | 6·57 | 0·61 | 54·94 | 0·54 | 4·08 | 0·38 | 554·8 | 1·88 | 13·92 | 1·33 | 2·51 | 0·23 |
| 5. Darwazi .. .. | 25 | 71·56 | 0·65 | 4·82 | 0·46 | 6·73 | 0·64 | 54·30 | 0·41 | 3·02 | 0·29 | 552·7 | 1·83 | 13·60 | 1·30 | 2·46 | 0·23 |
| 6. Wanji .. .. | 23 | 70·61 | 0·48 | 3·41 | 0·34 | 4·83 | 0·48 | 52·83 | 0·35 | 2·50 | 0·25 | 552·6 | 1·60 | 11·40 | 1·13 | 2·06 | 0·20 |
| 7. Yazgulami .. | 20 | 68·35 | 0·63 | 4·15 | 0·44 | 6·07 | 0·65 | 52·08 | 0·56 | 3·74 | 0·40 | 547·5 | 1·61 | 10·68 | 1·14 | 1·95 | 0·21 |
| 8. Roshani .. .. | 57 | 69·96 | 0·34 | 3·78 | 0·24 | 5·40 | 0·34 | 55·14 | 0·32 | 3·63 | 0·23 | 553·4 | 1·12 | 12·51 | 0·79 | 2·26 | 0·14 |
| 9. Shughnani .. | 40 | 72·12 | 0·49 | 4·61 | 0·35 | 6·40 | 0·48 | 57·39* | 0·39 | 3·55 | 0·27 | 549·6 | 1·03 | 16·15 | 0·84 | 2·04 | 0·22 |
| 10. Ishkashmi .. | 34 | 71·41 | 0·50 | 4·32 | 0·35 | 6·05 | 0·49 | 58·50 | 0·44 | 3·77 | 0·31 | 539·7 | 1·42 | 12·25 | 1·00 | 2·27 | 0·19 |
| 11. Wakhi .. .. | 55 | 72·73 | 0·39 | 4·34 | 0·28 | 5·97 | 0·38 | 59·57 | 0·42 | 4·65 | 0·30 | 546·8 | 1·19 | 13·14 | 0·84 | 2·43 | 0·16 |
| 12. Sistani .. .. | 37 | 74·73 | 0·39 | 3·50 | 0·27 | 4·68 | 0·37 | 56·55 | 0·36 | 3·22 | 0·25 | 557·8 | 1·52 | 13·90 | 1·09 | 2·50 | 0·20 |
| 13. Sayad .. .. | 33 | 73·03 | 0·70 | 5·94 | 0·49 | 8·13 | 0·68 | 53·96 | 0·58 | 4·90 | 0·41 | 551·2 | 1·65 | 14·01 | 1·16 | 2·54 | 0·21 |
| 14. Biloch .. .. | 35 | 72·20 | 0·49 | 4·29 | 0·35 | 5·94 | 0·48 | 55·31 | 0·38 | 3·33 | 0·27 | 552·5 | 1·70 | 14·93 | 1·20 | 2·52 | 0·20 |

TABLE V

| | Stature. | | | | | | | Span. | | | | | | Stature-span Index. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. | C. | E.C. | M. | E.M. | σ. | Eσ. |
| 1. Kirghiz .. .. | 55 | 165·74 | 0·48 | 5·26 | 0·34 | 3·17 | 0·20 | 168·31 | 0·57 | 6·26 | 0·40 | 3·72 | 0·24 | 101·59 | 0·23 | 2·52 | 0·16 |
| 2. Ozbeg .. .. | 9 | 169·78 | 1·32 | 3·89 | 0·94 | 3·47 | 0·55 | 173·67 | 1·09 | 4·88 | 0·77 | 2·81 | 0·45 | 102·46 | 0·44 | 1·97 | 0·31 |
| 3. Tajik .. .. | 16 | 167·56 | 0·86 | 5·11 | 0·61 | 3·05 | 0·36 | 172·44 | 1·16 | 6·86 | 0·82 | 3·98 | 0·47 | 102·84 | 0·48 | 2·85 | 0·36 |
| 4. Karategin .. | 26 | 163·96 | 0·84 | 6·38 | 0·60 | 3·88 | 0·36 | 169·50 | 0·74 | 5·56 | 0·52 | 3·28 | 0·31 | 103·38 | 0·33 | 2·51 | 0·23 |
| 5. Darwazi .. .. | 14 | 160·68 | 0·96 | 7·12 | 0·68 | 4·43 | 0·41 | 165·88 | 1·26 | 9·36 | 0·89 | 5·64 | 0·54 | 103·21 | 0·49 | 3·61 | 0·34 |
| 6. Wanji .. .. | 23 | 163·74 | 0·72 | 3·13 | 0·51 | 3·13 | 0·31 | 170·00 | 0·85 | 6·09 | 0·61 | 3·58 | 0·36 | 103·74 | 0·36 | 2·59 | 0·26 |
| 7. Yazgulami .. | 20 | 165·10 | 0·59 | 3·94 | 0·42 | 2·39 | 0·26 | 168·50 | 0·82 | 5·42 | 0·59 | 3·22 | 0·34 | 102·07 | 0·29 | 1·94 | 0·21 |
| 8. Roshani .. .. | 58 | 165·26 | 0·49 | 5·59 | 0·35 | 3·32 | 0·21 | 170·67 | 0·62 | 6·94 | 0·44 | 4·07 | 0·25 | 103·06 | 0·46 | 5·30 | 0·33 |
| 9. Shughnani .. | 40 | 168·40 | 0·68 | 6·36 | 0·48 | 3·18 | 0·24 | 174·53 | 0·75 | 6·99 | 0·53 | 4·01 | 0·30 | 103·48 | 0·24 | 2·27 | 0·16 |
| 10. Ishkashmi .. | 34 | 164·32 | 0·52 | 4·47 | 0·37 | 2·73 | 0·22 | 168·41 | 0·43 | 3·84 | 0·31 | 2·28 | 0·19 | 102·54 | 0·36 | 3·12 | 0·26 |
| 11. Wakhi .. .. | 55 | 165·69 | 0·56 | 6·17 | 0·40 | 3·72 | 0·24 | 169·78 | 0·72 | 7·89 | 0·51 | 4·65 | 0·30 | 102·39 | 0·54 | 5·90 | 0·38 |
| 12. Sistani .. .. | 25 | 168·51 | 0·56 | 5·08 | 0·40 | 3·01 | 0·24 | 176·35 | 0·59 | 5·36 | 0·42 | 3·04 | 0·24 | 104·70 | 0·21 | 1·91 | 0·15 |
| 13. Sayad .. .. | 33 | 164·55 | 0·67 | 5·73 | 0·48 | 3·48 | 0·29 | 172·53 | 0·70 | 5·96 | 0·50 | 3·46 | 0·29 | 104·78 | 0·38 | 3·21 | 0·27 |
| 14. Biloch .. .. | 35 | 167·89 | 0·57 | 5·00 | 0·40 | 2·90 | 0·23 | 173·51 | 0·69 | 6·07 | 0·49 | 3·61 | 0·29 | 103·40 | 0·16 | 1·37 | 0·11 |

TABLE VI. Table of Differential Indices (ΣΔ)

| | Kirghiz (2). | Ozbeg. | Tajik. | Karategin. | Darwazi. | Wanji. | Yazgulami. | Roshani. | Shughnani. | Ishkashmi. | Wakhi (2). | Sistani. | Sayad. | Biloch. | Kâfir. | Wakhi (1). | Mastuji. | Chitrali. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ozbeg | 8·63 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Tajik | 4·85 | 9·94 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Karategin | 7·19 | 6·17 | 8·64 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Darwazi | 8·29 | 7·89 | 11·70 | 4·07 | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Wanji | ·37 | 5·42 | 9·09 | 2·68 | 3·95 | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Yazgulami | 8·41 | 5·61 | 10·01 | 4·48 | 4·94 | 4·73 | — | — | — | — | — | — | — | — | — | — | — | — |
| Roshani | 6·00 | 6·01 | 5·26 | 3·46 | 4·91 | 4·19 | 4·86 | — | — | — | — | — | — | — | — | — | — | — |
| Shughnani | 8·31 | 8·00 | 4·75 | 5·31 | 7·21 | 7·69 | 7·43 | 3·83 | — | — | — | — | — | — | — | — | — | — |
| Ishkashmi | 8·94 | 9·75 | 7·18 | 7·43 | 9·09 | 9·73 | 8·45 | 4·91 | 4·87 | — | — | — | — | — | — | — | — | — |
| Wakhi (2) | 8·22 | 9·61 | 6·79 | 7·35 | 9·65 | 9·31 | 8·78 | 6·08 | 3·82 | 3·12 | — | — | — | — | — | — | — | — |
| Sistani | 9·86 | 12·52 | 8·90 | 7·79 | 7·31 | 9·77 | 11·73 | 8·44 | 7·07 | 12·74 | 10·91 | — | — | — | — | — | — | — |
| Sayad | 9·49 | 9·49 | 9·60 | 4·61 | 4·90 | 6·77 | 8·16 | 6·59 | 7·35 | 11·67 | 10·17 | 4·17 | — | — | — | — | — | — |
| Biloch | 8·36 | 10·02 | 9·02 | 5·95 | 5·05 | 7·30 | 8·55 | 6·00 | 6·22 | 10·21 | 9·58 | 4·78 | 2·92 | — | — | — | — | — |
| Kâfir | 8·79 | 13·68 | 8·16 | 11·72 | 11·06 | 12·58 | 12·25 | 8·52 | 10·37 | 11·18 | 11·94 | 12·71 | 10·58 | 10·06 | — | — | — | — |
| Wakhi (1) | 4·48 | 9·78 | 6·05 | 9·52 | 10·20 | 9·59 | 9·86 | 6·57 | 8·71 | 9·13 | 8·99 | 12·93 | 9·25 | 10·27 | 8·99 | — | — | — |
| Mastuji | 5·70 | 11·20 | 5·61 | 9·17 | 9·17 | 9·70 | 9·54 | 6·70 | 8·06 | 8·92 | 10·17 | 12·43 | 10·47 | 10·10 | 4·18 | 5·76 | — | — |
| Chitrali | 7·35 | 11·07 | 4·56 | 9·18 | 9·46 | 10·11 | 10·44 | 6·45 | 6·56 | 7·35 | 7·54 | 9·74 | 8·98 | 8·49 | 5·92 | 6·76 | 4·84 | — |
| Kirghiz (1) | 9·52 | 11·98 | 13·56 | 10·92 | 16·30 | 13·50 | 13·94 | 13·13 | 15·68 | 16·14 | 15·23 | 20·27 | 16·51 | 17·90 | 15·72 | 9·89 | 12·39 | 15·22 |

*Note.*—Figures in italics indicate that the ΣΔ includes at least one Δ amounting to 1·00 or over.

* 38 indices only.

TABLE VII. Differential Index

| | Σ Δ under 3. | Σ Δ under 4. | Σ Δ under 5. | Σ Δ under 6. | Σ Δ under 7. |
|---|---|---|---|---|---|
| Kirghiz (2) | — | — | Tajik, *Wakhi (1)*. | *Wanji, Mastuji*. | *Roshani*. |
| Ozbeg .. | — | — | — | Wanji, Yazgulami. | Roshani, Karategin, |
| Tajik .. | — | — | Shughnani, Kirghiz (2), Chitrali. | Roshani, Mastuji. | *Wakhi (2)*, *Wakhi (1)*. |
| Karategin | Wanji. | Roshani. | Yazgulami, *Sayad*, Darwazi. | Shughnani, *Biloch*. | Ozbeg. |
| Darwazi .. | — | Wanji. | Roshani, Yazgulami, Karategin, Sayad. | Biloch. | — |
| Wanji .. | Karategin. | Darwazi. | Roshani, Yazgulami. | Ozbeg, *Kirghiz (2)*. | *Sayad*. |
| Yazgulami | — | — | Roshani, Wanji, Karategin, Darwazi. | Ozbeg. | — |
| Roshani .. | — | Shughnani, Karategin. | Wanji, Yazgulami, Ishkashmi, Darwazi. | Tajik. | Wakhi (2), Ozbeg, *Sayad*, *Biloch*, *Kirghiz (2)*, *Wakhi (1)*, *Chitrali*, *Mastuji*. |
| Shughnani | — | Wakhi (2), Roshani. | Ishkashmi, Tajik. | Karategin. | *Biloch*, *Chitrali*. |
| Ishkashmi | — | Wakhi (2). | Shughnani, Roshani. | — | — |
| Wakhi (2) | — | Shughnani, Ishkashmi. | — | — | Roshani, *Tajik*. |
| Sistani .. | — | — | Sayad, *Biloch*. | — | — |
| Sayad .. | Biloch. | — | Sistani, Darwazi, *Karategin*. | — | *Roshani*, *Wanji*. |
| Biloch .. | Sayad. | — | *Sistani*. | Darwazi, *Karategin*. | *Shughnani*, *Roshani*. |
| Kāfir .. | — | — | Mastuji. | *Chitrali*. | — |
| Wakhi (1) | — | — | *Kirghiz (2)*. | Mastuji. | Tajik, *Roshani*, *Chitrali*. |
| Mastuji .. | — | — | Chitrali, Kāfir. | Tajik (1), *Kirghiz (2)* | *Roshani*. |
| Chitrali .. | — | — | Tajik, Mastuji. | *Kāfir*. | *Shughnani*, *Roshani*, *Wakhi (2)*. |
| Kirghiz (1) | — | — | | | |

*Note.*—Names in italics indicate that the Σ Δ comprises at least one Δ amounting to 1·00 or over.

TABLE VIII

| | No. | Eye-colour. Per cent. | | | Hair-colour. Per cent. | | | Hair, amount. Per cent. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | D. | M. | L. | D.B. | L.B. | F. | A.B. | M. | Sc. |
| Kirghiz .. .. | 54 | 41 | 54 | 6 | 98 | 0 | 2 | 7 | 15 | 78 |
| Ozbeg .. .. | 10 | 90 | 10 | 0 | 90 | 0 | 10 | 60 | 10 | 30 |
| Tajik .. .. .. | 16 | 13 | 63 | 25 | 100 | 0 | 0 | 100 | 0 | 0 |
| Karategin .. .. | 27 | 44 | 52 | 4 | 100 | 0 | 0 | 81 | 15 | 4 |
| Darwazi .. .. | 25 | 60 | 32 | 8 | 100 | 0 | 0 | 88 | 4 | 8 |
| Wanji .. .. | 23 | 74 | 26 | 0 | 96 | 0 | 4 | 87 | 9 | 4 |
| Yazgulami .. .. | 20 | 40 | 60 | 0 | 100 | 0 | 0 | 95 | 0 | 5 |
| Roshani .. .. | 59 | 61 | 25 | 14 | 91 | 2 | 7 | 78 | 7 | 16 |
| Shughnani .. .. | 41 | 37 | 56 | 7 | 92 | 3 | 5 | 78 | 7 | 15 |
| Ishkashmi .. .. | 35 | 29 | 49 | 23 | 85 | 3 | 12 | 88 | 9 | 3 |
| Wakhi .. .. | 56 | 29 | 70 | 2 | 89 | 7 | 4 | 75 | 21 | 4 |
| Sistani .. .. | 39 | 90 | 10 | 0 | 100 | 0 | 0 | 59 | 19 | 22 |
| Sayad .. .. | 24 | 65 | 35 | 0 | 100 | 0 | 0 | 56 | 26 | 18 |
| Biloch .. .. | 35 | 97 | 3 | 0 | 97* | 0 | 0 | 51 | 20 | 29 |

* 3 per cent. (one individual) described as 'black-haired'.

# APPENDIX D

## NOTES ON CERAMIC SPECIMENS

## FROM CHINESE TURKESTĀN, KANSU, AND SĪSTĀN

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THE fragments of pottery found on the pre-T'ang sites are difficult to classify for several reasons. In the first place, many of them have suffered from sand-erosion, which has destroyed the surface and probably in some cases destroyed the glaze. Secondly, the pottery locally made in these remote districts is often extremely primitive in its technique. Much of it is made without a wheel and baked in an open fire, and the ornament, if any, is as rudimentary as the technique. This is conspicuously true of the fragments found on the Lal-tāgh site near Marāl-bāshi and at Toyuk, both reputed T'ang sites; but it applies equally to many of the pieces found on the earlier sites of Lou-lan and the Tun-huang Limes, which to all appearances might as well be prehistoric as of the Han period. The result is that, except for a few rare specimens on which the glaze has survived and a few others bearing familiar traits such as 'mat-marking', &c., the pottery itself is of uncertain evidential value until we come to the Sung and later types which are no longer of local make, but evidently imported from the more easterly provinces of China.

*Tun-huang Limes.* The early pottery found here varies from red through grey to black in colour according to the firing. Some of it is hand-made; some made on the wheel and well potted, with thread-marks on the base and spiral finish inside. The bases of vessels are flat, the mouths have out-turned lips, and in some cases the lower part of the sides is lightly faceted—a feature observed in early Chinese pottery found in the eastern provinces.

Where ornament is used it consists of simple impressions of 'matting' or textile, sometimes in bands of 'corduroy' pattern such as might have been made with string-matting. This is usually associated with the hand-made ware. Other ornament is incised with a multiple tool or comb, in bands of lines or festoon pattern. Similar patterning is also found on early pottery in the east of China.

One would say that most of the ware is of local make, but made by Chinese workmen. Its character accords with that of the pottery found elsewhere in China and reputed to be of Chou, Han, and Three-Kingdom periods.

The later glazed wares include specimens of blue and white porcelain, some of which may well be as late as the seventeenth century, and brown-glazed stoneware which may date back to the Sung dynasty. None of these pieces is likely to be older than the Sung dynasty.

*Lop Desert.* The fragments of sand-worn pottery from this area are of red ware (sometimes black on the surface) or coarse black ware, apparently all hand-made. The ornament consists of impressed circles, a rough incised herring-bone pattern, and notched bands in relief, all of which are common to the primitive pottery found in many parts of the world.

*Lou-lan.* The pottery from the Lou-lan area appears also to be mainly hand-made, though in general character it is more advanced than the Lop fragments and nearer to the Tun-huang pottery. It is of grey and red material ornamented with (1) incised cross-hatching, wavy bands, herring-bone, &c., and plain and wavy lines made with a multiple tool; (2) impressed or incised wicker pattern, circles, &c.; (3) raised bands of cable pattern. It was probably made locally by Chinese.

A few pieces of glass, apparently of late Roman type, were found here.

*Mīrān* (near Charkhlik). Pottery similar to that of the Lou-lan finds.

*Koyumal* (near Charkhlik). A few fragments of hard red pottery with black lines and streaks under a leaf-green glaze. The green glaze, which is iridescent in parts, is a survival of the Han green, lead-silicate glaze which continued in use certainly down to the T'ang period. Its presence is consistent with the dating of the Koyumal site as fourth to seventh century.

A fragment of similar pottery was found at Lāl-tāgh, and a fragment of red pottery with plain green glaze slightly iridescent was found at Tonguz-bāsh, near Kucha, a site which appears to have been occupied down to T'ang times.

*Vāsh-shahri.* The pottery found here is not older than the Sung dynasty: it consists of buff-white stoneware with black and brown glazes and stoneware with opalescent glazes of the Chün Chou type.

A few fragments of glass found here are probably Chinese of the same period as the pottery: they are obviously intended to imitate green jade.

*Niya Site.* A few pieces of pottery found here include (1) a primitive slate-grey ware specked with white grit (a fragment of similar ware was found in the Lou-lan area), and (2) a red or buff-red pottery also hand-made with incised ornament, not unlike the vase found at Ying-p'an.

*Adūna-kōra.* Chinese stoneware of Tzechow (Tz'ŭ Chou) and Northern celadon types found here, not older than the Sung dynasty.

*Khara-khoto.* The ceramic fragments found at Khara-khoto are of well-known Sung and Ming types, viz. Northern Chinese celadon, and other celadons; Chün Chou wares; Tzechow stoneware with diced ornament in brown glaze, impressed circles, graffiato designs, and black painting, and a kindred ware with creamy glaze painted in tomato red; marbled ware with glaze; white porcelain with or without moulded designs; and blue and white which is mostly of Ming type.

These wares were found indifferently on both KK. and KE. sites and almost all of them could be as old as the Sung or Yüan dynasties, except some of the blue and white, which one would expect to be as late as the sixteenth century.

*Murtuk (Turfān).* M.B. I. fragment of Muhammadan glazed pottery; probably thirteenth century.
M.B. III. two fragments of Chün Chou type; Sung or Yüan periods.

*Astāna Cemetery.* The pottery found here has special interest as the cemetery is datable to the seventh-eighth century. It is rough and coarsely made, though on the wheel, and has a slaty grey body. Thread-marks on the bases and light faceting of the lower parts are features common to other early Chinese wares.

The ornament is painted in red and white pigments over a wash of black, and the designs include scrolls such as occur on Chinese pigmented pottery which is reputed to be several centuries earlier, and also a peculiar 'spotting' with round white discs which has analogies with the spotted and mottled T'ang glazes.

*Toyuk.* The pottery found here, though apparently wheel-made, is rather coarser and more primitive than the T'ang pottery found in Eastern China. Some of it has wavy bands and others incised patterns made with a multiple tool, such as occur commonly on the fragments from earlier sites.

Another type is interesting and peculiar. It is reddish to grey in colour and dressed with black clay which is partly polished, a regular striped pattern being formed of alternate mat and polished bands (cf. a similar technique on the Sīstān pottery from Kōh-i-Khwāja).

*Ying-p'an.* The few pieces of pottery found here include an interesting jug with single handle. It is apparently hand-made, of gritty red pottery, and it has a band of incised lozenge ornament on the shoulder.

*Khitai-shahri.* The fragments found here are of the Lou-lan and early Tun-huang types: red and grey pottery with cable bands in relief and incised wavy bands, &c. made with a multiple tool.

*Kuchā.* The pottery found here is Chinese and of well-known types, such as Northern Chinese celadon, Tzechow stoneware, and marbled ware with green glaze which are likely to be of the Sung or Yüan periods, and blue and white of Ming date. A piece of green-glazed pottery from Tonguz-bāsh, in this district, is an earlier type dating between Han and T'ang.

*Lāl-tāgh* (Marāl-bāshi). Two fragments found here are coarse, grey, hand-made pottery of primitive appearance.

*Sīstān.* The Sīstān and Khorāsān finds roughly divide themselves into two groups—(1) the unglazed pottery which is almost entirely pre-Muhammadan, and (2) the glazed pottery of the Muhammadan period.

In *Group (1)* there is a large and well-defined sub-group of buff or reddish buff pottery made on the wheel and ornamented with painted designs in thin black slip. With this are a few pieces of fine, hard, slaty grey pottery similarly ornamented. The designs on this ware (see Pl. CXIII, CXIV) are so distinctive in type that it is possible to say with certainty that this painted pottery belongs to the chalcolithic culture represented in the pre-Sumerian sites of Mesopotamia;[1] in Persia—at Muhammadabad, Anau, and in the Darragaz district (see Percy Sykes, *History of Persia*, vol. i. p. 57); in Manchuria, at Sha Kuo T'un; at Yang Shao in Honan (see J. G. Anderson, *Palaeontologia Sinica*, Series D, vol. i. fasc. 1, Peking, 1923, and *Bulletin of the Geological Survey of China*, No. 5, 1923), and in more recent discoveries by J. G. Anderson in other parts of North-Western China. The dating of these various sites ranges from about 2000 to 5000 B.C.

The Sīstān sites (see above, Chap. XXX. ii) on which this painted ware was found are marked SS. (Shahr-i-sōkhta); Mounds I–III; R.R.; K.G.; Machi. Specimens of similar wares without painted decoration were found on the same sites.

The remaining pottery of group (1) has not necessarily any relation to this Neolithic sub-group. It consists chiefly of wheel-made red pottery, well finished and ornamented with incised, stamped, or relief designs of a simple kind—such as combed lines and festoons, leaf-shaped stamps, punched circles, raised bands, plain, notched, or milled, &c. (see Pl. CXV). In one small group a polished red surface is relieved by mat rings lightly scraped on the wheel (cf. a similar technique on pottery found at Toyuk).

Pottery of this description comes from the sites Gha. (Ghāgha-shahr), Shahr. (Shahristān), and Gh. Ta. (Ghala-tappa). On the site marked Gha. red pottery was found, some of which had the lightly scratched wheel-rings noticed in the previous paragraph and some a strong ribbed exterior which appears to be a common feature of the pottery found on Sasanian sites.

The Ātish-kadah site produced fragments of red ware, plain or with simple incised patterns of rings and wavy bands; one piece has a festoon pattern incised with a multiple tool. This site is reputed to be Sasanian; and a comparison of the pottery found here and on the Shahristān site would seem to indicate that much of the Shahristān red pottery is also of the Sasanian period. Ribbed red pottery of Sasanian type also occurs among the K.G. finds.

*Group (2)* includes the Muhammadan pottery found in Sīstān and elsewhere in Khorāsān (Pl. CXVIII). It is mostly buff or red, or a sandy white earthenware, with painted designs in blue and brown under a colourless glaze or in brown-black under a turquoise glaze, and it ranges in date from the thirteenth to the seventeenth century.

Such wares were found on the following sites: Bibi-dōst, Gh., Sal., K.G., R.R. (one piece), Machi, Mound I, Surhdik, Pusht, Burj-i-Afghān and at Mujinābād in Persia.

Site A near Sīstān (see above, ii. p. 938) produced several interesting types (Pl. CXVII). Some recall the Persian pottery of ninth to eleventh centuries with incised ornament and green glaze on a red body, while a large group resembles the Samarkand pottery of the twelfth to fourteenth century. This has a red body dressed with white slip and gaily decorated in black, brown, red, and ochreous yellow slips together with metallic pigments (yellow and manganese purple) under a colourless glaze. Some of the ornament is graffiato. The designs are mostly of the arabesque kind commonly found on Muhammadan pottery, common features being a black dentate border on the lips of bowls, &c., and the use of dotted patterns.

[1] See Dr. H. R. Hall's notes on the Excavations of 1919 at Muquayyar, el-Obeid, and Abu Shahrein, in the Centenary Supplement to the *J.R.A.S.*, 1924. See also Henri Frankfurt, *R. Anthrop. Inst.*, Occasional Paper, No. 6, 1924.

The tiles (Khar. 01, &c., Pl. CXVIII) from the Madrasah of Khargird (Persia) are interesting. The mosque was built in 1400, and the earliest tiles, which probably date from the foundation of the building, have their arabesque and geometrical patterns made up in sections with blue, turquoise, green, yellow, and white glazes and inlaid mosaic-fashion.

A second type has similar designs and colouring but not in true mosiac, the colours being simply painted with a brush on the surface of the tile and separated by lines of dry manganese brown, which give them a mosaic-like appearance. These tiles doubtless belong to an early restoration. A third type represents a later restoration in which the designs are simply outlined in brown on the white surface of the tile, washed in with colour and the whole covered with a transparent glaze, the technique being that of the ordinary painted pottery without any attempt to give the appearance of mosaic.

It should be added that a few pieces of Muhammadan or Near Eastern pottery appeared on the Chinese Turkestān sites, e.g. in the Turfān district (M.B. I. 027).

# APPENDIX E

## INVENTORY LIST OF MANUSCRIPT REMAINS MAINLY IN SANSKRIT

BY

F. E. PARGITER, M.A., I.C.S. (RET.)

[NOTE.—As it has not been found practicable to reproduce all transcripts which Mr. Pargiter's painstaking care has furnished from the majority of text fragments, a typed copy of the original Inventory 'slips' as received from him has been placed in the India Office Library for convenient reference by future students.—A. STEIN.]

### GENERAL REMARKS.

THESE MS. remains are generally written on country paper, but silk cloth is found in one Pōthī leaf, B. Koy i. 020, and birch-bark and palm-leaf in fragments from Koyumal and Bāsh-koyumal.

The writing is all in Brāhmī script of the Northern Gupta style, but shows many varieties, the letters being sometimes very large, thick, and squat, and sometimes small, fine, and neat; sometimes very angular and sometimes rounded; sometimes stiff and upright and sometimes cursive and slanting. A few appear to be in some other script, as Kuduk-Kōl. 043.

The fragments are of all sizes, from tiny bits to a large sheet measuring 23⅜" × 7¾" (Far. 07). They show all stages of decay, some being well preserved, and some so far torn, frayed, or crumpled that little or nothing can be made out of them.

Letters that are not quite clear but can be read with some probability are italicized; those that are more or less obliterated are enclosed in round brackets ( ); and portions that are destroyed, torn off, or lost are enclosed in square brackets [ ].

In most fragments there is nothing clear to indicate which side is the obverse and which the reverse. If this can be discovered from the contents, it is so stated and treated; but if it is not discoverable, the side on which 'site mark' has been written is for convenience treated as the obverse, and the unmarked side as the reverse.

The dimensions of the fragments are stated, the first figure denoting the length in the direction of the writing, and the second the width at right angles thereto, the maxima measures being taken always.

The language is generally the inaccurate form of Sanskrit, affected by Prakrit, which is sometimes called 'mixed Sanskrit', but which might preferably be styled 'low Sanskrit', after the analogy of 'low Latin'. A few fragments are in Khotanese, as styled in Hoernle's *MS. Remains of Buddhist Literature found in E. Turkestan*, pp. x, xi, 214, &c. Dom. 0124 appears to be more Pali than Sanskrit.

Where a letter (*akṣara*) is destroyed or illegible, it is marked . . If it consists of compound letters, it is marked . . . If the consonant is legible but not the vowel, it is marked e.g. thus, k. . If the vowel is legible but not the consonant, it is marked e.g. thus, .ā.

Some remarks may be made about the script. Final consonants, which in ordinary Sanskrit are marked by virāma, are written slightly lower than the line of writing (and often without their top wedge) and are super-

scribed with a circumflex-like mark ⌒; in the transcripts the finals are then written similarly, with the mark ⌒ over them. The final is sometimes attached to the preceding letter.

There are many small errors and omissions, and vowels are sometimes of wrong length. Both anusvāra and visarga are often wrongly inserted or omitted; and visarga appears to be used as a mark of punctuation more often than otherwise. A large dot, which is often more or less like ⌢, is also used for punctuation, and appears to mark the end of the first line of a verse, where the passage is poetry.

I have tried to identify the passages that occur in these fragments, but without much success. Thus I have examined the Vajracchedika, the smaller Sukhāvatīvyūha, and the Prajñāpāramitā Sūtras in *Anecdota Oxoniensia*, Aryan Series, Part I, Buddhist Texts; the Buddha-carita in the same series, Part VII; also the Divyāvadāna and the Lalitavistara, and the remains published in Hoernle's *MS. Remains* mentioned above; but have not succeeded in identifying any passage therein.

From the Saddharmapuṇḍarīka come: Khad. 016 and 027; Ile-dong. 09; Domoko. 0120 and 0124; Balaw. 0153.

I have not found any of these passages in the Avadānaśataka, Madhyamikasūtras, Śikṣāsamuccaya, nor Mahāvastu.

[For the sites of Balawaste (Balaw.), Domoko, Farhād Bēg-yailaki (Far.), Khādalik (Khad.), see *Serindia*, i. pp. 155 sqq., 197 sqq.; iii. pp. 1246 sqq.; of Kuduk-kōl and Sampula, above, i. pp. 100, 128 sq.—A. STEIN.]

## I.—MANUSCRIPT REMAINS COLLECTED BY BADRUDDĪN KHĀN AT KHOTAN, MAINLY FROM SITES NEAR DOMOKO

### A.—SANSKRIT TEXT FRAGMENTS

**Balaw. 0153.** Paper ochre coloured. R. portion of a leaf, which is 3¼" wide. Size 5¼" × 3¼". Writing small, neat, not angular.

Contains verses in Upajāti metre, with a redundant twelfth syllable sometimes. Verse 18 ends apparently at beginning of visible portion of line 2 of Obv.; verse 20 ends in line 3; and verse 25 ends in line 3 of the Rev. These verses come from the *Saddharmapuṇḍarīka*, Kern–Nanjio's edn., xiii. pp. 19–25. The figure '8' in line 2 should be '9'. It contains p. 281, verse 19 to p. 282, line 13 of that edition. Hence apparently 5 verses, Nos. 21–25, occupy nearly 6 lines, and it follows from a calculation of the syllables in those verses, together with the numbering of the verses, that each line of the complete leaf comprised about an average of some 36 letters; and as about 17 letters occupy 4¾" on an average, it also follows that the entire leaf with its margins was about 10½" long. Hence the L. side of the leaf to the extent of about 5¼", containing 18 or 19 letters per line on an average, has been lost.

**Balaw. 0155.** Paper brown. Fr., 2¾" × 3", from middle portion of a leaf. Writing medium sized, rather cursive, with letters not in strict alignment.

**Domoko. 0120.** One leaf, complete except that (1) R. side has been torn away and (2) L. margin has gone and the L. portion has been almost obliterated through damp for at least 1¾", and the letters there are illegible. Size 9½" × 3¼". Paper brown. Pl. CXXII.

Writing medium sized, upright. In some places letters from some other MS. have become impressed on this and so interfere with the legibility.

Two other fragments: see below.

This passage comes from the *Saddharmapuṇḍarīka*, Kern–Nanjio's edn., iii. p. 79, lines 10 ff. to p. 80, line 10.

With the foregoing are two other fragments unmarked:

(i) an irregular piece (extreme measures 7½" × 3¼") belonging to R. part of a leaf. (ii) a small fragment, 2¾" × 1".

These are on same kind of paper and have same kind of writing as the foregoing, but are very much frayed and damaged, so that only a few letters here and there can be read.

**Domoko. 0122.** R. portion of a leaf, which is really a double leaf, consisting of two thin leaves stuck together. Size 7¾" × 2⅜". Paper brown. Writing large, very thick, upright, with the letters spaced apart. Pl. CXXII.

Obv.

. . . . la-duhitur-vā rakṣā paripālana
. . . . m-āyu-pālani-vidyā kālya murthāya ⌢ vā
. . . . su puṣpe • dhūma-parihāre ārya praśasta ⌢
. . . . ṇa garbhe stave sravite svāhā || Atha khalu hāri
. . . . [v]ocat Aham-api bhadamta Bhagavaṁs-tasya *kula*

Rev.

. . . . vayiṣyati • tad-yathā viniv̄araṇī ~ vadaṁ *ḍa*
. . . . . ., ra samāna vajraṁ ~ varaṇī jāla-mālinī • ca
. . . . , lā ‖ Atha khalu vai śramaṇo mahārāj-*ādhar*atha
. . . . ji ~ virūpākṣau mahārāji • yena Bhagavāṁs-te
. . . . voca; Vayam-api bhadata Bhagavaṁ Śak*ra*

**Domoko. 0123.** Brown paper. L. portion of a leaf, 8¾" × 6¼". Writing large, very thick, angular, upright, and rather squat. Pl. CXXII.

Obv.

svaṁ lokadhātum tena jihv-ēndriyeṇa *sphari* . . . .
rāḥ sarve ca te raśmayo ratnamayā ni . . . . .
yad-at-ēmā me vaṣat-pāramitā ni . . . .
m-evam-anuvidikṣuḥ sarva-samantatau *dha* . . . .
varṇāni raśmi-kauṭi-śata-sahasrāṇi . . . .
ca padmeṣu Tathāgata-vigrahā . . . .
tan-dharmaṁ suśruvuḥ . . . . . I sarā . . . .

Rev.

*īre* śabdāś-ca su . . . .
h piyitsitāni ca paripō . . . .
vuḥ hīna-kāya-śarīrāṇi pa . . . .
sama-cintāni babhūvuḥ mātṛ-pi(tṛ) . . . .
*kuśa*leṣu karma-patheṣu śikṣā sa . . . .
tāni babhūvuḥ eva rūpeṇa su . . . .
smin samaye • evaṁ-rūpayā prajñayā . . . .

**Domoko. 0124.** One leaf, of which R. side has been torn off about 2⅓" with loss of from 5 to 7 letters in each line. Size 11⅞" × 3⅓". Pl. CXXI.

Writing medium sized, nearly upright. The leaf was doubled up with some other leaves, and damp has caused some of the letters of another leaf to be impressed on this in places, and so to confuse the writing. Paper brown.

The contents are verses, mainly in the Upajāti metre, but the scansion is at times irregular (really Prakritic or Pāli) and a pāda has sometimes a twelfth syllable, so resembling the Vaṁsasthavila metre.

The language is Prakrit or Pāli partially Sanskritized. This passage is in the *Saddharmapuṇḍarīka*, Kern–Nanjio's edn., i. p. 12, verses 30 f.

**Domoko. 0167.** Frs. of various MSS., which have been crushed together and have decayed. Most of them are little better than pulp mixed with dust. Some have now been separated out in three packets, which show (1) large Brāhmī letters, (2) smaller Brāhmī letters, and (3) Tibetan and other characters.

**Far. 01.** Thickish brown paper. Fr., triangular, about 3" × 3", from middle portion of a leaf. Writing rather small, upright. Rev. frayed and indistinct.

**Far. 02.** Fr., triangular, 4" × 4⅞". Similar to Far. 01 and probably part of the same MS. Judging by position of cord-hole the full width was about 5" with 9 lines to the page. From middle portion of leaf.

**Far. 03.** Coarse paper, ochre coloured. Fr., triangular, 2⅛" × 3¼". Writing rather small, somewhat slanting. From middle portion of leaf.

**Far. 04.** Paper ochre coloured. Fr., 2⅞" × 2¾". Writing of medium size, upright; letters very thick, squat. From middle portion of leaf.

**Far. 06.** A multitude of small and very small fragments belonging to many MSS., written by different hands. Paper generally light brown.

One set has very large letters; another small script; another some peculiar marks; and a separate piece has what looks like scribbling.

**Far. 07.** Brown paper. Very large sheet, 23⅓" × 7¾". Edges frayed, especially the left margin, and in right portion a triangular piece has been frayed away completely. The side which is marked 'Far. 07' appears to be the rev. and the other side is taken as the obv. It has one cord-hole in middle, and 6" from left edge, within a circle of 1⅔" diameter. Pl. CXXI.

The writing is large, very thick, nearly upright. It is in very fair preservation except in places, especially on the R. and L. sides. R. portion of leaf on rev. was folded obliquely over, and some of the letters on it have been impressed by damp obliquely on main part of leaf.

On the reverse is a large circle, 2" in diameter, with its centre 2⅓" from the left edge, breaking the continuity of lines 9–12. Visarga, sometimes rightly placed and sometimes wrongly, appears really to be a mark of punctuation, and is not treated as *ḥ* here. In line 8 of the reverse ends the 84th section called the *Śūnyatāparivarta*; and the next section begins apparently near the beginning of line 9, which shows that this is a treatise on the Prajñā-pāramitās.

Obv.

ramitāyāṁ caramāṇa : paramārtham na cācalāti : satvānāṁ ca kṛtyaṁ ca karoti : tad-yathā dānena priya-vacanena • artha-caryayā • samanārthatayā cet. [about 11 letters lost] Subhūtim-etad-avauca; Evam-eta Subhūte tathā yathā vadasi : yathā khalu sarvba-dharma-śūnyatā : na kasyaci dharmasya kṛty-ākṛtyaṁ karauti : Tat-kathaṁ bodhisatvo mahāsatva : prajñ(ā) [about 8 letters lost]
. . . . *paramārthaṁ* cācalati : satvānāṁ ca kṛtyaṁ carikaroti : tad-yathā dānena vistara : yadi Subhūte etāni satvāni svayam-eva śūnyatā jāniyu : na bhūya ta [about 7 letters lost] viṣa-
yā bhaveṣya : śūnyatāyāś-ca na cācalāti : satvāni c-ātma-saṁjñāyāṁ vivekayati : vivekayitvā ca śūnyatāyāṁ saṁsārāṁn -vimokṣayati : Evaṁ . . . . saṁjñāyā . . . . . . . darśaka-saṁjñāyā • Evaṁ-rūpa-saṁjñāyāṁ • yāvad-vijñāna-saṁjñā-yāṁ • cakṣu-saṁjñāyāṁ • yāva dharma-saṁjñāyāṁ • pṛthivī-dhātu-saṁjñāyāṁ • yāva vijñāna-dhātu-saṁjñāyāṁ • Evaṁ saṁskṛ[ta] . . . . . . (saṁ)jñāyāṁ vive-
kayati • vivekayitvā ca saṁskṛte dhā ◯ tau pratiṣṭhāpayati : loka-vyavahāreṇa • san pi ca saṁskṛta-dhātu śūnya iti : Āha • Kena śūnyau • Bhagavān-āha . *sarvā* [. . . .] śūnyau pi tu [Su-]
bhūte yo nirmitam-abhinirmim*ite* ti : kaṁ ◯ ci tasya nir-

mitasya *ta*s-tv-asti • ya : n-na śūnyam-iti : Āha • na nirmitasya bhadanta Bhagavaṉ kaṁcid-*t*astv-asti : ya : n-na śūnya [Bhaga]vān-āha : ya(ś-ca)

Subhūte nirmitau • yā ca śūnyatā : hy-u ⊙ bhāv-etau dharmau na saṁyuktau na *vi*saṁyuktau ubhāv-etau śūnyatā : śūnyatāyāṁ c-āśūnyo : tat-kim-atra vinigūhita bhavaty : ayaṁ nirmita : ya

yaṁ śūnyat-ēti : tat-kasmid-dheto tathā hy-etāv-ubhau paramārtha śūnyatāyāṁ n-aupalabhyante : ayaṁ nirmitā īyaṁ śūnyat-ēti : n-āsti Subhūte rūpaṁ vā vedanā vā saṁjñā vā • na *santi* saṁ-

. . . . . . (n)-āsti vijñānaṁ • yaṁ na nirmitaṁ • yaṁ ca nirmita : tac-chūnyatāyāṁ yuktam-iti : Ath-āyuṣmāṁ Subhūti Bhagavantam-etad-avauca; Yadi bhadanta Bhagavaṉ n-ime lokikā dharmā nirmitā :

. . . . . . . . lokikā dharmā nirmitā : tad-yathā catvāri smṛty-upasthānānī • yāvad-āryāṣṭāṅgo mārga • evaṁ trīṇi vimokṣa-mukhāni • n-daśa Tathāgata-balāni • catvāri vai śā*radyāni* • *cata*sra pra

. . . . . . . . hā-maitrī • mahā-karuṇ-āṣṭādaśa vedanikā Buddha-dharmā : yaṁ c-āmeṣāṁ dharmāṇāṁ phala : yā c-āyaṁ pudgala-prajñapti : tad-yathā srota-āpanna • sakṛdāgāmi (a)nāgāmi . . mu . . . . pratye*ka*-

[Buddha Tathā]gato rhā samyaksaṁbuddha : *api* [tv]-*ime pi* dharmā nirmitā iti : Evam-ukto Bhagavān-āyuṣmantaṁ Subhūtim-etad-avauca; Ye puna : Subhūte sarvba-saṁskṛtā dharmā nirmitā : tatra

Rev.

. . . . . . (ni)rmitā • keci pratyeka-*Buddha*-[nirmitā •] keci bodhisatva-nirmitā • keci Tathāgata-nirmitā • keci karma-nirmitā • keci kleśa-nirmitā • S-ta*d*-a*ne*na Subhūte (va?) paryāyeṇa sarvba-saṁskṛtā dha-

[rmā . . Subhū]ti : āha • Yān-īmāni bhadanta Bhagavaṉ prahāṇa-phalāni : tad-yathā srautāpatti-phala : yāvad-arhastaṁ : pratyeka-bodhi • r-anuttarā ca samyaksaṁ-bodhi : sarvba-kleśa-vāsan-ānusandhi prahā-

[ṇa . . . . . dha]*rmā* nirmitā : Bhagavān-āha : Yat-kaści Subhūte dharma utpāda-vyaya-yukta : sarvbo so nirmita iti : Āha : katamo bhadanta Bhagavaṉ dharmau yo na nirmita : Bhagavān-āha : yasya Subhūte dha-

[rma . . . . . . . ]. au • na vyayan • na virodha • nirmita • Āha • sa puna : katama : Bhagavān-āha • *A*-samo*ṣa* dharma nirvbāṇa : rma ya*n-dh*armau *na* nirmita : Āha • Yad-etad-ukta Bhagavatā śūnyatā śūnyatāyā na calati :

na ca *r*rba ye hy-upalabhyate : na ca kaści dharmo yo na śūnya : kasmi bhadanta Bhagavaṉ na samo*ṣa dharmā na* nirmito bhaviṣyati : Bhagavān-āha : Evam-eta Subhūte tathā yathā vadasi • sarvba-dharmā Subhūte

śūnyatā : svabhāva-śūnyatāyāṁ • te ca na ⊙ śrāvakebhi kṛtā : na pratyeka-Buddhai • na bodhisatvai • na Tathāgatai rhadbhi samyaksaṁbuddhai kṛta : yā ca svabhāva-śūnyatā . . . . : nirvbāṇam-iti • *Evam-uta*

āyuṣmāṁ Subhūti Bhagavantam-etad-a ⊙ vauca; Ādi-karmikau bhadanta Bhagavaṉ pudgala : kathaṁm-anu-vadi*t*avyaṁ; ka*th*aṁ anuśāsitavyaṁ : yathā so *ya mām* . . vā*da* śūnya . . . . *parijā*[1] *niyo* :

Bhagavān-āha : Kin-puna : Subhūte *pū*rvbe ⊙ so bhāvau bhūṉ paścād-abhāvau bhaviṣyat-īti : ⸗ Śūnyatā-parivartau nāmnā caturāśitima : samāpta . . . . . . dāya dharma yaṁ . . . . . . *tiji* . .[2] . . *rā rvba*

drasya : )) ◯ )) Punar-aparaṁ Subhūte bodhisatvena mahāsatvena : tathā khalv-īyaṁ prajñā-pāramitā paryeṣitavyā : yathā sadā praruditena bodhi [many letters lost] *pa* :[3]

eta ◯ rhi bhiṣma-garjita-*s*varasya Tathāgatasy-ārhata : samyaksaṁbuddhasy-āntike brahmacāryaṁ caṁcāryate : Āyuṣmāṁ Subhūtir-āha : Yathā ha*th*aṁ [about 11 letters lost] *ne*[4] • na bodhi-

satvena ◯ mahāsatven-āyaṁ prajñā-pāramitā paryeṣitā : Bhagavān-āha : Sadā praruditena Subhūte bodhisatvena mahāsatvena pūrvbe janman-īyaṁ pa [about 9 letters lost] kāyen-āna ◯ rthikena • jīviten-ānarthikena • lābha-satkāra-ślaukāni : śrtena : sa c-āmāṁ prajñā-pāramitā-paryeṣaṇo raṇya-gatau ntarikṣā yo *ṣaṁ* śaśru [about 8 letters lost] yathā . .

. . kāya klamatā-manasikāram-api n-ūtpādayasi : na sthina-mindha[5]-manasikārathm-utpādayasi : n-āpi bhaujana-manasikāram-utpādayasi : n-āpi pāna-manasi [kāram-utpādayasi : ] . . . . . . . .

**Ile-dong. 08.** Brown country paper. Fr. of L. side of leaf with one corner, 1⅝″ × 2⅜″. Writing rather large, thick, rather slanting. In margin on obv. are the figures '32'.

**Ile-dong. 012.** Similar to 08, and probably part of the same MS. It is a portion of the L. side of a leaf. 1⅝″ × 2¼″.

**Ile-dong. 09.** Ochre-coloured paper of poor quality. L. portion of leaf, 8¼″ × 3½″, with cord-hole 5¼″ from L. edge. Writing largish, thick, squat, upright, and angular, partially frayed. Pl. CXXI.

The side marked is the obv. The rev. has three figures in the L. margin, illegible. This passage comes from the *Saddharmapuṇḍarīka*, Kern-Nanjio's ed., xxvi. p. 478, ll. 10 ff. to p. 480, l. 5, but has plenty of variation in its wording.

Rev.

Atha khalu Bhagavā*n-Cchaky*amunis-Tathāgato rhat-samyaksaṁbuddhaḥ sama . . . .

tvaṁ eva bahu-jana-hitāya pratipannaḥ ev-ācintya-guṇa-dhar(m)ai . . . .

tt-ōtpādena yas-tvaṁ svayam-eva teṣāṁ su ⊙ trānta-dhārakā n . . . .

vedayitavyaṁ Śākyamunis-tais-Tathāga ⊙ to rhat-samyaksaṁbu . . . .

kāc-chrutaḥ Śākyamuniś-ca tais-Tathāgato rhat-samyaksaṁbuddhaḥ pū . . . .

viṣyaty-anumoditaś-c-āyaṁ dharma-paryāyo *bhā*ṣyamāṇo bha . . . .

[1] Impressed over line 8. [2] Impressed over lines 8 and 9. [3] Impressed over line 10. [4] Impressed over line 11.
[5] Read 'sthina-middha'.

Obv.

yiṣyati • tasya kālaṁ kurvato maraṇa-kāla-samaye . . . .
devānāṁ sābhavyatāyām-upapatsyati • yatra tiṣṭhati . . . .
ta sahasra parivṛtaḥ puraskṛto dha ⊙ rmaṁ deśayati . . . .
yaḥ saṁkṛtya likhitavyaḥ saṁkṛty-ôddeṣṭa ⊙ vyaḥ saṁkṛtya
pa . . . .
paryāyaṁ likhitvā uddiśitvā svādyāyitvā cintayitvā bhā . . . .
n-tarhi (Bha)-gavann-aham-eva tāvatimaṁ dharmaparyāyam-
adhiṣṭha hāmi ma . . . .

**Ile-dong. 011.** Five small frs. Coarse ochre-coloured paper, somewhat frayed. Largest fr. 2" × 2¼". Writing medium sized, slanting; faint on obv.

**Ile-dong. 013.** Ochre-coloured paper. Fr. 1½" × 2" of very narrow leaf which was only 2" wide. Writing only on one side, small, rather fine, cursive like. From middle of leaf.

**Ile-dong. 019.** Multitude of tiny frs., belonging to many MSS., some in Sanskrit, some not so apparently. They are too small for anything material to be deciphered from them.

**Ile-dong. 020.** Brown paper. Fr. 1¾" × 2¼". Writing very large, very thick, bold, clear, upright, angular. From middle of leaf.

**Ile-dong. 021.** Brownish paper. Fr., being R. portion of leaf, 4" × 2", width of leaf being 2". Writing small, upright, angular, neat.

**Ile-dong. 022.** Brownish paper. Fr. of L. portion of a leaf with one corner, 5⅝" × 3⅜". Writing large, very thick, upright, angular.

**Khad. 016.** Light brown paper. A large part of all the middle of a leaf, which is 3¾" wide; R. and L. portions lost. Length of fr. 11¾". No cord-hole mark.

From the sense it appears that the obv. is the side not marked. This side contains some Ślokas, and portions of Ślokas numbered from 2 to 6 appear. Calculating from the missing portions of Ślokas and the size of letters, it seems that some 9" in the aggregate have been lost at both ends and that the leaf must have been about 21" long.

This passage comes from the *Saddharmapuṇḍarīka*, Kern-Nanjio's ed., xviii. p. 355, l. 3, to p. 356, l. 10.

**Khad. 017, 021, 022, 023, 025, and 026.** These six pieces are parts of one leaf, and have now been put together. See Khad. 024, below.

Brown paper. The combined pieces form complete L. portion of leaf, the width of which is 7⅞", the R. portion being missing. Cord-hole in middle line, 6" from L. edge. The side uncovered with tissue paper is treated as the obv. Writing rather large, upright, and rather thick. Length 9½". Pl. CXXII.

The 67th section of this work ends in l. 2 of obv. It appears from ll. 2 and 8 of rev. to be a Prajñā-pāramitā.

**Khad. 019.** Brown paper. L. portion of leaf, which is 3⅞" wide. Fr. is 11" long, and has L. margin nearly complete. Cord-hole is 3¼" from L. edge of writing. Writing medium sized, nearly upright. Pl. CXXII.

Obv.

. . *rlya* . . *rmatā* • Anen-âpid-Bhagavān-paryāyeṇa tasya puruṣasya n-âsti mṛṣā-vādakaḥ puna . . . .
puruṣeṇa balu me kośa-koṣṭh-âgārā hy-ast-îti kṛtvā putra-priyaṁ tay-êva mṛgayamānena śiā . . . .
varṇāny-eva yānāni da ⊙ ttāni yad-idaṁ mahā-yānāni dattāni n-âsti Bhagavāṁs-tasya . . . .
cin-mṛṣā-vādaṁ • Evam-u ⊙ kto Bhagavāṁn-āyuṣmantaṁ Śāradbatī-putram-etad-avocat Sā . . . .
ti-putr-âivam-etac-Chāradbatī-putra tathā yathā vadasi (evam-eva) Śāradbatī-putra tath . . . . .
ksaṁbuddhaḥ sarvba-bhayavi nitānta • (sa)r(vb)a . . . . . . .
. . . . . . . . -ôpāyāsa-parimuktaḥ.

Rev.

maraṇa-[śo]ka-pari [de]va-du(ḥkh)a-daurmanasya- . . . . . . .
. . . . . . . . . . . . . avidy-ândhākāras-tamas-(t)i . . . .
ryava-naddhāt-saṁsāra-niveśanāt-Tathāgato sarvb(e)ṇa sa vir.
.r. .u .t. s-Tathāgata-jñāna-darśana . . . . .
vaiṇik-êndriya-bodhyaṁga-dhyā ⊙ na-vimokṣa-samādhi-samāpattiḥ Bu*ddh*a-dharma-samanvāgato . . . .
balavān-sarvba-loka-pi ⊙ tā mah-ôpāya-kauśalya-jñāna-darśana-parama-pārami prāpto m . . . . .
apara khinna-mānaso hit-âiṣī anukaṁpako mahā-dharma-rājā mahā-dharma-svāmī sa ādipte traidhā . . . .
. . . . . . gni-skandhena ādipta-jīrṇa-paṭala-śaraṇa-niveśana-sadṛśe saṁsāra-niveśane upa . . . .

**Khad. 020.** Brown paper. Triangular fr. of L. side of leaf, the width of which is 4". Length of fr. 4½" to 1½".

Writing medium sized, thick, upright.

**Khad. 021–3,** see Khad. 017, &c.

**Khad. 024.** Brown, coarse, thickish paper. Fr. of R. portion of leaf, 4½" × 2¼". Writing largish, upright, similar to the repaired leaf, Khad. 017, &c.

**Khad. 025–6,** see Khad. 017, &c.

**Khad. 027.** Brown paper. R. portion of leaf with R. margin nearly complete; size 7⅛" × 3⅜". Writing medium sized, upright. It contains verses, and as verses 31–2 are in Upajāti metre with an occasional redundant twelfth syllable, a calculation shows that some 16 to 19 letters (according to their size) have been lost in each line in missing L. portion, that is, about 6" have been lost on L. side, including cord-hole.

Letters from another leaf have been imprinted reversely over rev., so rendering much uncertain or illegible.

These verses are verses 134–43 in the *Saddharmapuṇḍarīka* (Kern-Nanjio's ed.), ii. pp. 57–9.

**Khad. 028.** Coarse ochre-coloured paper. An irregular fr. of the L. portion of a leaf with the L. margin partially visible, 2½" × 4⅛". Writing large, very thick, squat, and angular, with the letters spaced apart.

**Khad. 029.** This packet contains only small frs., often much crushed, of at least 8–9 MSS. Writing generally of Brāhmī script, but in some cases appears to be different. The frs. are so small that nothing definite seems discoverable. Some frs. show traces of fire.

**Khad. 039.** Brownish paper. Fr., 3" × 4", of middle portion of leaf with one margin, the R. and L. portions being lost. Judging from position of cord-hole, the leaf was 5"

wide, with 10 ll. to the page. Writing medium sized, nearly upright, thick, but not angular.

**Khad. 041.** Brownish paper. Fr. of lower R. portion of leaf, $6'' \times 2\frac{1}{4}''$. Judging from cord-hole, the leaf was about $4\frac{1}{2}''$ wide, with 9 ll. to the page.

Writing medium sized, thickish, slanting, rather cursive and sprawling. Text appears to contain Ślokas, but there is not enough preserved to enable one to say how much has been lost or what the length of the leaf was. Visarga seems to be used to mark the end of the second pāda.

**Khad. 042.** Brown paper. Irregular-shaped fr., $4'' \times 4\frac{1}{2}''$, forming a portion of middle of a leaf. Writing small, upright, neat, not angular. The paper is ruled faintly to guide the tops of lines. There are small spaces here and there in the text, and these are observed in this transliteration. The writing is similar to the script in B. Koy. 09, *q.v.*

Obv.

. . . . ya na da aya-kṣānti ya samant . . . .
. . . . rma-jñān-ānuparivartana pāramita ṣṭa ⌐ ya ma . . . .
. . . . *pa* virya ya moha-vigame aya-dhyāna . .
apra . . . .
. . . . parikṣa aya-dāna-da ya skandha-parikṣa a . . . .
. . . . tihata-jñāna-darśana-pāramita ṣṭa . . . .
. . . . śila-da ya pudgala sambheda . . . .
. . . . gati ad*dh*eḥ aprati . . . .
. . . . ya kṣānti ya nirodha-pa(r)y . . . .
. . . . rśana pāramita ṣṭa ⌐ J tatra *ka* . . . .
. . . . ha ta ta ayaṁ viryya *ya*

Rev.

. . . . pāramita ṣṭa J tatra kata . . . .
. . . . *nti* ya irddhi pāda parigra(h)e . . . .
. . . . pāramita ṣṭa ⌐ ya prajña *indri* . . . .
. . . . heta prajña aya-dhyāna . . . . .
. . . . .aṁ • ya ga na vā sā do n. . . . . .
. . . . da jñāna-vāsan-āpagata aya-pra . . . .
. . . . ya asaṁkāra darśana aya-śila da . . . .
. . . . *ma* pariharamāna apārihāni prajñā-vimukti aya . . . .
. . . . ya-dāna ya kāya-karmma niyata aya-śi . . . .
. . . . jña ima kāya-karmma jñān-ānupari . . . .

**Khad. 044.** Brownish paper. Fr. of middle portion of leaf, which was $3\frac{1}{2}''$ wide; length of fr. $2\frac{1}{8}''$. Writing rather small, upright.

On obv. the final letters on R. often end abruptly and are not formed completely, as if the writing continued over some other piece of paper which has been removed. On rev. the R. edge has been cut off, and so portions of some letters are lost.

**Khad. 045.** Ochre-coloured paper. Fr. containing the L. part of the middle portion of a leaf, which was $2\frac{1}{4}''$ wide: length $2''$. Writing small, nearly upright, and rather cursive in style.

**Kuduk-köl. 031.** R. portion of a leaf; $7\frac{1}{4}'' \times 4\frac{3}{4}''$. Paper ochre coloured. Writing large, very thick, angular, upright; the same as on Kuduk-köl. 037.

**Kuduk-köl. 032.** Brown paper. Fr. of R. portion of a leaf; $2\frac{1}{4}'' \times 2\frac{1}{2}''$. Writing very large, thick, and rather squat.

**Kuduk-köl. 033.** Fr. of R. portion of leaf; $7\frac{1}{2}'' \times 5\frac{1}{2}''$. Very much decayed. Writing and paper similar to that of Kuduk-köl. 031, 037.

**Kuduk-köl. 036.** Paper light brown. Fr. from middle portion of leaf; $3\frac{1}{2}'' \times 4\frac{1}{2}''$. Writing similar to that on Kuduk-köl. 032, but the letters are more spaced apart, very large, thick, and squat, in lines far apart. See Kuduk-kol. 039.

**Kuduk-köl. 037.** R. portion of a leaf; $7\frac{1}{2}'' \times 5\frac{1}{4}''$. Paper ochre coloured. Writing same as on Kuduk-köl. 031, 033.

**Kuduk-köl. 038.** Paper dark brown. Fr. from middle of a leaf; $2'' \times 4\frac{1}{2}''$. Writing very large, thick, squat, and spaced apart like Kuduk-köl. 036.

**Kuduk-köl. 039.** Fr. like Kuduk-köl. 036; $2'' \times 4''$. Paper ochre coloured. Writing the same; lines far apart. From middle of leaf.

**Kuduk-köl. 041.** Brown paper. Small fr. from middle portion of a leaf; $3\frac{3}{4}'' \times 2''$. Writing largish, moderately thick, nearly upright.

**Kuduk-köl. 045.** Very course thin paper. Fr. $3\frac{1}{2}'' \times 1\frac{1}{2}''$. Very much frayed and crumpled. Writing largish.

**Kuduk-köl. 046.** Paper light brownish. Fr. of R. portion of a leaf; $2\frac{1}{8}'' \times 2\frac{1}{2}''$. Writing same as on Kuduk-köl. 038.

**Kuduk-köl. 047.** Paper very coarse. Size $5\frac{3}{4}'' \times 2\frac{1}{4}''$. Writing rough, similar to that on Kuduk-köl. 034. It seems to have been written on both sides, but if so the writing on one side has faded away, and on the other side only three or four stray letters are visible.

**Kuduk-köl. 048.** A mass of frs., all small, of different MSS. Paper. Writing in some large and thick, in some medium sized, in some small. The frs. are so much frayed, crumpled, and irregular in shape, that nothing material can be made out of them.

**Sampula. 028.** Ochre-coloured paper. Irregular fr. from middle portion of a leaf; $5'' \times 5\frac{1}{4}''$. Writing large, very thick, upright, squat.

**Sampula. 029.** Paper light ochre coloured, coarse. Fr. from middle portion of a leaf; $2\frac{1}{2}'' \times 3''$. Writing large, very thick, upright, rather squat.

**Sampula. 030.** Brown paper. R. portion of a leaf; $8\frac{1}{4}'' \times 9\frac{1}{4}''$. Writing very large, very thick, upright, angular, squat.

**Sampula. 031.** Fr. $3'' \times 2\frac{1}{2}''$. Like Sampula. 029. Paper. Letters large, very squat. Much crumpled and frayed. Part of middle portion of a leaf.

**Sampula. 032.** Fr. $5'' \times 2''$; like Sampula. 029. Greatly frayed, blurred, and faded: almost illegible.

**Sampula. 033.** Brown paper. Fr. $3'' \times 1\frac{3}{4}''$, from middle portion of a leaf. Writing large, very thick, upright, squat.

Two small frs., similar to Sampula. 033.

**Sampula. 034.** Light brown paper. Fr. $3'' \times 2\frac{1}{2}''$, from

middle portion of a leaf. Writing similar to Sampula. 033. Only a few stray letters are legible.

**Sampula. 035.** Fr. 1⅝" × 2¾", from middle portion of a leaf. Paper brown. Writing similar to Sampula. 034. Only a few letters are legible, among them 'prajñā'.

**Sampula. 036.** Fr. 3" × 2¾". Paper brown. Writing similar to Sampula. 037; angular.

**Sampula. 037.** Fr. 3¾" × 1½", from middle portion of a leaf. Paper brown. Writing similar to Sampula. 036; very large, very thick, upright, squat.

**Sampula. 038.** Fr., like Sampula. 032.

**Sampula. 039.** Paper brown. Fr. 1¾" × 2¾", similar to Sampula. 034.

**Sampula. 041.** Paper brown; 1⅝" × 2¾"; a narrow piece of R. end of a leaf. Writing very large; only last letter or two in each line.

**Sampula. 042.** Fr., paper; like Sampula. 032.

**Sampula. 043.** Paper coarse, ochre coloured. Fr. 2" × 3¾", from middle portion of a leaf. Writing similar to Sampula. 034.

**Sampula. 044.** Paper ochre coloured. Fr. from middle portion of a leaf, 2" × 2¾"; much frayed. Writing medium sized, upright; much faded.

## B.—NON-SANSKRITIC TEXT FRAGMENTS

**Kuduk-köl. 034.** Light brown paper. Fr. from middle of a leaf; 4½" × 2¾". Writing on one side only; rather large cursive, Khotanese Gupta, like Plate XVII, No. 2, Obv., and less like Plate XV, fols. 7 and 8, in Hoernle's *MS. Remains*. Language appears to be Khotanese.

**Kuduk-köl. 035.** Brown paper. Fr. from middle of a leaf; 4" × 2½". Writing large, very thick, upright, and angular, like that in Plates V to X of Hoernle's *MS. Remains*. Language appears to be Khotanese.

**Kuduk-köl. 040.** Irregular fr., 4½" × 4". Paper brown. Writing in large characters, some of which have some resemblance to Brāhmī but seem more like Chinese. Writing not continuous, or rather seems longitudinal.

**Kuduk-köl. 042.** Light brown paper. Fr. from middle of a leaf, 5" × 4"; very much crumpled. Writing on one side only; letters rather large, well spaced. Partly like Kuduk-köl. 034, and partly like Plate I, No. 2, in Hoernle's *MS. Remains*. Language is not Sanskrit, and the contents seem to be some kind of account.

**Kuduk-köl. 043.** Very coarse paper. Fr. very much frayed and crumpled. Writing, very large characters in faint ink, something like Brāhmī, but not apparently continuous, and seemingly Chinese. Size 5½" × 2".

**Kuduk-köl. 044.** Coarse paper. Fr. 3¼" × 1½". Writing like that on Kuduk-köl. 034, on one side only. The language appears to be Khotanese.

**Kuduk-köl. 047.** Coarse paper. Fr. from middle of a leaf; 3½" × 2". Writing on one side only. Letters like those on Kuduk-köl. 034. The language appears to be Khotanese.

**Kuduk-köl. 077.** Very coarse paper. Fr. 5¾" × 2¼". It seems to have been written on both sides, but if so the writing on one side has faded away, and on the other side only three or four stray letters are visible. Writing seems like that on Kuduk-köl. 034.

**Samp. 040.** Ochre-coloured paper. Fr. 2½" × 1¾" Writing only on one side. Writing seems like Tibetan.

# II.—MANUSCRIPT REMAINS IN SANSKRIT RECOVERED FROM SITES OF KOYUMAL, BĀSH-KOYUMAL, JIGDALIK

(See above, i. pp. 165, 167; ii. p. 832.)

**Koy. i. 09.** Palm leaf. Left portion, 3" × 1⅝". Very brittle. Writing small, upright, fine, very neat, different in style from the general run of MSS. Pl. CXXI. On the left margin on obv. are two numerals which resemble 6 and 80.

Obv.

satpaṃnasaṁ Kuśalānāṁ dhammeṇa . . . . . .
napprabandhaṁ praty-etad-aktaṁ na kṣaṇa
evaṁ bhaviteṣu ṛddhi pāde . . . . .
ti-Punar-āha Mārggaṁ mārgga . . . .

Rev.

yada ca indr(i)ya n-ādhipatya n . . . .
tre prayogotsadata ādhipatya .
ti atha vyatirikta svabhava dhi . . . .
yadi c-ōrddhraṁ mimāṁsāya citte ka . . . .

**Koy. i. 010.** Small palm-leaf fr., 1¼" × 1½". Writing like B. Koy. i. 09; probably part of same MS.

| Obv. | Rev. |
|---|---|
| . . . kuśala śabda mṛ . . . . | . . . . rvaṁ kali kaluṣa . . . . |
| . . . . ko kuśalo hi . . . . | . . . . nanu na śodhaya .i . . . . |
| | . . . . . . tya c . . . . |

**Koy. i. 011.** Small palm-leaf fr., 1¾" × ⅞"; part of middle portion. Writing like that on Koy. i. 010. Along the middle is a space with remains of writing on each side of it,

so that the writing did not extend the whole length of leaf but formed at least two blocks of script. Only a few letters are visible and legible.

**Koy. I. 012.** Small palm-leaf fr., 1" × ¾"; apparently part of L. side. Writing rather larger than on Koy. i. 010, more angular, and sloping backwards. Only pieces of two lines on each side with two or three letters in each; nothing intelligible. On L. side of rev. there seem to be some numerals, of which one appears to be 5.

**Koy. I. 013.** Tiny palm-leaf fr., ⅝" × ¾". Writing only on one side. Writing small, thickish, upright; something like Koy. i. 010.

**Koy. I. 015.** Birch-bark fr., 2⅜" × 1½", with four smaller frs., Koy. i. 016–19. On the obv. are portions of two lines, and on the rev. portions of three lines. Writing in small, upright Northern Gupta script, like that on Koy. i. 09. Pl. CXXI.

Obv.

.... yāti ko nv-asy-āṁśaḥ yādi *pū* . v ...
.... sa ghaṭaḥ(?) ⁓ 7 para-lokaṁ. .... au .au ....

Rev.

.... ndhan-dhanam-utsṛjati v. ....
.... *ṇ*a ciram-ahaṁ avicaryya *bh*. ....
.... palabhya *pra*jāgaro me ....

**B. Koy. I. 014.** A packet containing many minute frs., of palm leaf and birch-bark, now very brittle. Writing small, upright, neat, very compact; something like Koy. i. 010. It is impossible to do more than read various words on the larger frs., such as: indriya (often), ṇāvik, tatra katarāṇi, śaikṣasya, catuṣkoṭi, jñāna, śairṣo; dveṣṭi prā, srota, sama (often), nivṛtavya.

**B. Koy. I. 020.** MS. fol. on silk cloth, which was covered with white paint, and the letters were written in large, bold, upright characters of Northern Gupta script. Leaf has separated into five pieces through decay subsequent to discovery.

The leaf was 5" wide and more than 13½" long. The writing was in seven lines to the page, and extended from edge to edge, with no margin. The cord-hole was in middle line, 3⅞" from L. edge.

Where the white paint remains, the writing is clear, but it has worn off in patches from large portions, and the letters then are only faintly or doubtfully discernible or have altogether disappeared. R. portion of leaf is the only piece that admits of material decipherment. Pl. CXXI.

Obv.

.................. *yady*-evam-arhata ṛam-Bhagavān-*abh*
................. da *bhya* .. *ṇ*ṇ-kutaḥ ⁓ asārāt-sa(ṁ)sār
.... kadali nissāraka
........ ṣpratinibhā; sa-duḥkhān ᴴ-nistrāṇā .. dahana-dīpārcci-sadṛśād-dhī *mo*(?)ktum samya .. m-puruṣavṛ[ṣa]bh-ādyā .. *dī* ...... gu

....... .āma .. bhogeṣu jātā-vinivaraṇa-paryyavarāṇatāś-ca manasasyamyag-dhuhkhādiny ᴴ-a ..... .ya nideśayā-mā[sa] ......
.... śa mo ............ .ā .ikaṁ
śivaṁ (sā) saha śravaṇā .ya [pū]rṇṇāsya duḥkh-ādi[1]
*pā*ryya .. .y. ..
.... dharmaś
ca paripūrṇṇā-manorathaṁ-imaṁ Bhagavantam-abravi[t] .. .āyi ..
.... iti
pro ....... ṇa ...... *bra*damāṁ punuḥ ka .āya
va *sa*
.... .y. *ma ha*
.. ṣana .. .... sy-ānugraha-cikīrṣu *na* pūrṇṇamā
(mu na)

Rev.

....
*saṁ hu* na .. *ka* ............ sarvāna
*nu* .. *pū* ........
....
*vo ya rambarana ha* ...... *pu* la ....
ta ba . *indha* ja ga .. *dā*
. ..
sāriṇo māṇavāḥ-pūrṇṇa .. *da* jagmuḥ
sa ha . ai .............. *ta*
.... kṣ. .ā ......
...... ṅka sā ya vā sa(ma)ṁ dadṛśur-māṇava sarvve pūrṇṇaṁ pūrṇṇa-manorathā ....
.... [brā]hmaṇyam-
utsṛjya śramaṇya .kṛ ...... ddhṛtaṁ kim-evan-*ta* ..
ny-eva gṛhṇan-tad-bravi*ti* .......
.... *nu*ttamāv-atra paraṁ yan-me gṛhitaṁ mahat-saṁsāre parivattat-āhisata tan-n-ātat-kadācid-dhṛtaṁ adya hy-agrahaṇād-*dh*asi .. *ka* ...ā ddhai
.... gatau gatiṇ-na dadṛśus-saṁsāra eva sthitāḥ | sa tatas-[t]e māṇavās-tat-pratyay-āvarjita-manasa*ḥ*-pūr[ṇṇ]a-(ku)śala-mūla sañcodi

**Jig. I. 02.** This packet contains four fragments, all in different writing.

I. Light ochre-coloured paper; 2" × 3"; portion of the middle of a leaf. Writing smallish, rather cursive, slanting, peculiar.

One side.

.... ḥ ṣu taṁ ....
.... katama .... *ṇ*/*a* ....
.... upetya pu .... .e ....
.... ti patita tam-aṁtarā ....
.... te pateta tam-aya ...
.... syā .. .. vā dā pū*rṇa* ....
.... pā *ca* ṣma ....

Other side.

.... cetasa pu ....
.... yuṣma .. me vartate ....

[1] ḥ is written here as jihvāmūlīya with a special character.

.... tasmāt-tarhi ⌒ ....
.... .. tame .. tya ga da ....
.... saṁmata syaṁdā . e ....
.... yuṣmā *du* ....
.... vedyate ....

II. Light ochre-coloured paper; portion of the middle of a leaf, $1\frac{3}{4}" \times 2\frac{1}{2}"$. Writing thick, angular, slanting.

| One side. | Other side. |
|---|---|
| .... pu ṇa mā *ka* ga .... | .... rga prakav .... |
| .... sa ki *tyā* r*ka* .... | .... śāi .. .. tti .... |
| .... ta gṛhitvā *ka* .... | .... rā , aṁ jāti .... |
| .... ti va tasya .... | .... te sa *rtha* saṁ m .... |

III. Brown paper; portion of middle of a leaf, $1" \times 1\frac{3}{4}"$. Writing medium sized, thick, slanting.

| One side. | Other side. |
|---|---|
| .... .utpadya .... | .... *ma* .... |
| .... tthato vā .... | .... jñaḥ *tve* .... |
| .... te prāmo .... | .... sta da pra .... |
| | .... .ā tena .... |

IV. Brown paper. Fr. from middle of a leaf, $1\frac{1}{2}" \times 1\frac{1}{4}"$ Writing, Northern Gupta, as in Plate I, Fig. 1; Plate IV, No. 2; and Plate XIX, No. 2, in Hoernle's *MS. Remains*. Letters largish, slanting, thick. Language not Sanskrit, but apparently Khotanese.

# APPENDIX F

# INVENTORY LIST OF MANUSCRIPT REMAINS IN SANSKRIT, KHOTANESE, AND KUCHEAN

PREPARED

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## I.—MANUSCRIPT REMAINS COLLECTED BY BADRUDDĪN KHĀN AT KHOTAN, MAINLY FROM SITES NEAR DOMOKO

[Regarding the sites of Balawaste, Domoko, Farhād Bēg-yailaki, Īle-dong, Khādalik, cf. *Serindia*, i. pp. 155 sqq., 197 sqq.; iii. pp. 1246 sqq.; of Sampula, above, i. p. 100.]

**Balaw. 0149.** Thin wooden tablet, with string-hole at one end and faint traces of C.-A. Brāhmī letters.

**Balaw. 0150.** Piece of thin wooden tablet, with upright C.-A. Brāhmī letters of about 8th century.

**Balaw. 0151.** Long piece of wood, with faint traces of upright C.-A. Brāhmī letters.

**Balaw. 0152.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language. Four ll. to the page. Description of some abode of bliss.

**Balaw. 0154.** Portion of a document in upright C.-A. Brāhmī of about 8th century and Khotanī language.

**Balaw. 0173.** Numerous frs. of Pōthīs in upright C.-A. Brāhmī and Sanskrit and Khotanī languages.

**Balaw. 0174.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Balaw. 0175.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language; mentions Sīlapāramitā.

**Balaw. 0176.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Balaw. 0177–0185.** Nine frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language. The name Subhūti occurs in 0180.

**Balaw. 0186.** Numerous frs. of fols. of Buddhist Pōthīs in uprigh C.-A. Brāhmī and Sanskrit language.

**Balaw. 0187.** Fr. of fol. 210 of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Balaw. 0188–0191.** Four frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language.

**Balaw. 0192.** Fr. of fol. 194 of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Balaw. 0193.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Balaw. 0194.** Fr. of fol. containing syllabary of upright C.-A. Brāhmī letter compounds with *ya*.

**Balaw. 0195.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Balaw. 0196–0199.** Four frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language.

**Balaw. 0200–0222.** Minute frs. of fols. of various Pōthīs and one document (?) in upright C.-A. Brāhmī, of different age, down to about 8th century, in Sanskrit and Khotanī.

**Domoko. 0119.** L.-hand portion of fol. 98 of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language. Five ll. to the page. A little more than a third of the fol. is missing. Perhaps part of *Saṃghāṭasūtra*.

**Domoko. 0121.** Frs. of two fols. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language. Enumeration of ten different kinds of beings.

**Domoko. 0125.** Minute frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language.

**Domoko. 0168.** Wooden fr. inscribed with Tibetan letters.

**Farhād-Bēg. 05.** Portion of four-lined fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language. Subject: works resulting in happiness.

**Īle-dong. 01–03.** Three frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language.

**Īle-dong. 04.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language. Seems to belong to *Suvarṇaprabhāsottamasūtra*.

**Īle-dong. 05.** Part of six-lined fol. of Buddhist Pōthī, the *Saṃghāṭasūtra*, in upright C.-A. Brāhmī and Khotanī language.

**Īle-dong. 06.** Part of four-lined fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Īle-dong. 07.** Fr. of large fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language. Contains name [*Su*]*bhūti*.

**Īle-dong. 010.** Twenty-three small frs. of fols. of Pōthīs in upright C.-A. Brāhmī and apparently in Sanskrit language.

**Īle-dong. 014.** Numerous minute bits of paper with letters in upright C.-A. Brāhmī.

**Īle-dong. 015.** Damaged fol. written on one side only in upright C.-A. Brāhmī of about the 8th century, containing a declaration of gifts at the Buddha's command.

**Īle-dong. 016.** Fr. of syllabary of upright C.-A. Brāhmī, comprising compound letters containing a *ya*.

**Īle-dong. 017.** Portion of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Īle-dong. 018.** Defaced fr. and six minute frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī, apparently all in Khotanī language.

**Īle-dong. 023.** Portion of seven-lined fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Īle-dong. 026.** Wooden tablet inscribed on obverse with five, on reverse with three ll. in upright C.-A. Brāhmī of about 8th century and in Khotanī language. Contains a communication to the community of monks.

**Khad. 04.** Corner of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Khad. 05, 06.** Frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language. The name *Subhūti* occurs in 06.

**Khad. 07.** Fr. of document in upright C.-A. Brāhmī and Khotanī language.

**Khad. 08.** Corner of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language, containing name *Subhūti*.

**Khad. 09.** Corner of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Khad. 010.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Khad. 011.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Khad. 012.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Khad. 013–015.** Frs. of fols. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Khad. 018.** Fr. of left-hand portion of fol. of Buddhist Pōthī in upright C.-A. Brāhmī, written on one side only. Most of fr. lines are in Khotanī, but the extant portion of l. 4 and the beginning of l. 5 in Sanskrit. The name *Jambvīyai* occurs in l. 3.

**Khad. 038.** (i) Numerous small frs. of fols., each with a few Akṣaras in upright C.-A. Brāhmī and Sanskrit or Khotanī language. (ii) Portion of four ll. of fol. in upright C.-A. Brāhmī and Khotanī language. Apparently end of Pōthī containing part of invocation by the scribe together with his sister. On rev. later scribbles.

**Khad. 040.** Left-hand portion of fol. 10 of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language. Apparently in verse.

**Khad. 043.** Small fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Sanskrit language.

**Khad. 046, 047.** Minute frs. of fols. of Pōthīs in upright C.-A. Brāhmī and Khotanī language.

**Khad. 048.** Minute frs. of fols. of Pōthīs in upright C.-A. Brāhmī and Sanskrit language.

**Khad. 049.** Wooden stick with Brāhmī letters in Khotanī language of about 8th century.

**Khad. 050.** Wooden stick with Tibetan letters.

**Khad. 051.** Wooden stick with incisions and some defaced Brāhmī letters.

**Mazār-tāgh. 0443.** Frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language.

**Sampula. 08.** Right-hand portion of five-lined fol. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Sampula. 09.** Fol. 6 of a Buddhist Dhāraṇī in upright C.-A. Brāhmī and corrupt Sanskrit language.

**Sampula. 011.** Portion of document, Chinese on one side and defaced Khotanī in C.-A. Brāhmī on other.

**Sampula. 012.** Fr. of Buddhist Pōthī in upright C.-A. Brāhmī and Khotanī language.

**Sampula. 013.** Fr. of fol. of Buddhist Pōthī in upright C.-A. Brāhmī of about 8th century and Khotanī language.

**Sampula. 014.** Fr. of fol. of Buddhist Pōthī in defaced upright C.-A. Brāhmī of about 8th century and appar. in Khotanī language. Paper used by Tibetan scribe for practising.

**Sampula. 015.** Portion of paper document in upright C.-A. Brāhmī of about 8th century and Khotanī language.

**Sampula. 017.** Long slip of paper written on one side in defaced upright C.-A. Brāhmī of about 8th century. Appar. portion of Khotanī document.

**Sampula. 020.** Small piece of paper with writing in upright C.-A. Brāhmī of about 8th century and appar. in Khotanī language.

**Sampula. 021–027.** Pieces of paper with much-defaced writing in upright C.-A. Brāhmī of about 8th century.

## II.—MANUSCRIPT REMAINS IN SANSKRIT, KHOTANESE, AND KUCHEAN RECOVERED FROM SITES OF KUDUK-KÖL, TOGHRAK-MAZĀR, L.M., KUCHĀ, KHITAI-BĀZĀR, TAJIK, AND JIGDALIK

**Kuduk-köl. 029, 030.** Paper frs. of fols. of Buddhist Pōthīs in upright C.-A. Brāhmī and Sanskrit language. The name *Subhū*[*ti*] is found in one of the frs. [See above, i. p. 129.]

**T.M. iii. 01–02.** Concluding fol. (imperfect) of Buddhist Dhāraṇī in upright C.-A. Brāhmī of about 8th century and corrupt Sanskrit language. [See above, i. p. 101.]

**L.M. I. 036, 037.** Two small frs. of fols. in slanting C.-A. Brāhmī and apparently Kuchean language. [See above, i. p. 194.]

**L.M. II. ii. 08.** Paper fr. in cursive Brāhmī characters and Sanskrit language. [See above, i. p. 195.]

**Kucha 0188.** Wooden tablet, broken into two pieces, with faint traces of writing in slanting C.-A. Brāhmī and apparently Kuchean language.

**Khitai-bāzār (Kuchā) 01.** Small paper fr., with writing in slanting C.-A. Brāhmī and apparently Sanskrit and Kuchean language. [See above, ii. p. 820.]

**Taj. I. iii. 01.** Small paper fr. with slanting C.-A. Brāhmī letters. [See above, ii. p. 813.]

**Taj. I. iii. 02.** Small portion of syllabary of slanting C.-A. Brāhmī.

**Jig. I. 01.** Three minute frs. of palm-leaf manuscript in Brāhmī, one written on both sides, the remaining two on one only. Apparently Sanskrit. [See above, ii. p. 832.]

**Jig. I. 03.** Two frs. of fol. in slanting C.-A. Brāhmī and Kuchean language.

**Jig. I. 04.** Minute frs. of fols. in slanting C.-A. Brāhmī and Sanskrit and Kuchean languages.

**Jig. I. 05.** Minute frs. of fols. in slanting C.-A. Brāhmī and Sanskrit language.

**Jig. I. i. 02.** Eight small frs. of fols. in C.-A. Brāhmī; one in upright Brāhmī and Sanskrit language with passages, apparently translations, in Khotanī; others in slanting Brāhmī and Sanskrit and Kuchean languages.

**Jig. I. i. 03, 04.** Minute frs. of fols. in slanting C.-A. Brāhmī and Sanskrit and Kuchean languages.

# APPENDIX G

## NOTES ON MANUSCRIPT REMAINS IN KUCHEAN

BY

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PROFESSEUR AU COLLÈGE DE FRANCE

**Kao. 0146-8.** Semble être des fragments d'un bilingue sanscrit-koutchéen tracé au dos d'un chinois.

**0146.** yā . . . saṁkalpaṁ ‖ m . h . s . karṣa hitaṁ

*au dos ?*

*au dos :*

raho ‖ vici

**0147.** ‖ . . . . satyāhi

tāmalahamahārā-tamaṁ

tvanie ‖ utta

**0148.** *des chiffres*

udakavitpu ?

sādhu

pya . . . ‖

‖ (a)parādhalaṁ uddānaṁ

*au dos :*

yāska

bhani

‖ viśāra

ma kuśalaṁ ‖ pa . . . kuśalaṁ ‖ śikṣitaṁ

hā kalpaṁ ‖ . . . upa

yaśaṁ la . . . rthaparicchcda ‖

‖ saṁsā

**Bez. xii. 03.** C'est du koutchéen, car on lit:

ñakti śaiṣṣe 'les dieux monde'

**Toy. vi. 089.** Exercice d'écriture ; nom répété :

śikṣapālipti/ śikṣapālita sikṣ

La troisième ligne dont on voit des fragments portait encore le même nom répété.

**Kucha. 0187.** (Pl. CXXIII.) Fragment de traité ou de lettre.

māghāu su . . . waśmo

to ku/tpalo — palsko

ṛse ketwemteñċa//alle re

ktsecci tlet . ewaṛpaṅkāṁ —

— kārstau — śettoyewe

ñkalump — śale

. . . wate rimntā śle

ykeṣṣe ṣitketwa

ñye tketwa yārtto

ṣaipattu eṣke

ntr mlaweñpo

ette ywartse yu

ttau mā empreṁ palsko

lkasktesāś

nttsaṁ ṣarnn walletse

— ntsaṁ ślakka aismo

teram/ ynāñmeetsñ

wāsta yāṣ su snai

kaṅkau pokweṣe wāssi

waṣanta tmeikrapoklanta

# APPENDIX I

# CHINESE INSCRIPTIONS AND RECORDS

TRANSLATED AND ANNOTATED

BY

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## I

## SEPULCHRAL INSCRIPTIONS FROM ASTĀNA CEMETERY

THE thirteen inscriptions translated below are from tombs at Astāna near Kara-khōja (see above, ii. pp. 642–667). Sir Aurel Stein found it impossible to bring back the brick slabs themselves, and was obliged to content himself with photographing them and having the inscriptions copied by his Chinese assistant. Unfortunately, the majority of the photographs suffered badly in transit after development at Kara-khōja, and only four of them are sufficiently clear to be of much service. I have therefore had to rely chiefly on transcripts that are not altogether as accurate as one could wish.

1. **Ast. i. 4.** (Transcript and indistinct photograph.)

延和七年戊辰歲四月癸酉
朔十三日乙酉故張叔慶妻
○氏女太明稟性貞潔體行
純篤四德內融烋稱外著用
能○諸九族雍穆五親幼仕
舅姑有敬順之名長訓閨庭
無簡言之號可謂窈窕之淑女
張氏之良配者也宜延遐竿光○
大化天不慭遺奄然殞逝宗親悲
○○○○○春秋卌八殯葬斯墓

The *i-yu* day, the thirteenth of the fourth moon [1], of which the first day is *kuei-yu*, in the *mou-ch'ên* year, the seventh of *Yen-ho* [2]:—T'ai-ming was the wife of the late Chang Shu-ch'ing, and daughter of the Lady [ ] [3]; her disposition was pure and virtuous, her conduct habitually honest and straightforward. In her the four virtues [4] were inwardly blended, and excellent reports of her were published abroad. She was able to . . . keep the Nine Agnates [5] in accord, and to preserve harmony amongst the Five Relations [6]. When young, she served [7] her husband's father and mother, gaining a reputation for respectful obedience; at a maturer age she gave instruction in the women's quarters, and was free from any imputation of careless speech. One might truly call her 'a modest, retiring, virtuous young lady' [8], and a worthy helpmate for Mr. Chang. She should have been allotted a lengthy span of years, so that her light [might have effected] a great transformation [9]; but Heaven could not spare her long [10], and all too soon she passed away. Her kinsfolk, sorrowing. . . . At the age of thirty-eight, she was encoffined and buried in this grave.

## II. Ast. ix. 3. (Transcript only.)

延壽二年乙酉
歲正月丙申朔
十二日丁未中
郎王伯瑜妻晉
昌唐氏春秋七
十三殯葬斯墓
之墓表也

[1] The cyclical names of the days show that not the fourth moon, but the intercalary third moon is meant.

[2] 2 May, 608. For the dates of the sovereigns that reigned in Kao-ch'ang from A.D. 507 to 641, see Maspero's note in BEFEO, XV. 4, pp. 57 seq.

[3] The character is uncertain, neither photograph nor transcript being clear; but the latter seems to suggest 麴 Ch'ü, the family name of the Kao-ch'ang dynasty just mentioned, which occurs again in Nos. IV and IX.

[4] There are several categories thus named: in *Tso chuan*, 僖公 XXIV, § 2, they are enumerated as (1) 庸勳 employing the meritorious; (2) 親親 showing affection to one's relatives; (3) 暱近 cultivating the acquaintance of those near at hand; (4) 尊賢 honouring the worthy. Then we have the group 仁 Love, 禮 Propriety, 義 Conscientiousness, and 智 Wisdom, corresponding to the universal principles of 元, 亨, 利, and 貞 in the *I ching*; and the less familiar series 孝 filial piety, 弟 fraternal affection, 信 truth, and 忠 loyalty, in the *Ta tai li*. But it is probable that the author of this inscription was thinking rather of the 四行 'four departments of [wifely] conduct', as laid down in Pan Chao's 女誡 'Admonitions to Women'. These were (1) chastity and docility (婦德); (2) fair speech (婦言); (3) pleasant demeanour (婦容); (4) skill in weaving silk and hemp (婦功).

[5] For the earliest mention of the Nine Agnates, see *Shu Ching*, I. 2. Interpretations differ, but they are usually taken to be consanguineous relatives: (1) great-great-grandfather; (2) great-grandfather; (3) grandfather; (4) father; (5) self; (6) son; (7) grandson; (8) great-grandson; (9) great-great-grandson. Or collaterally, the cousins descended from the same great-great-grandfather. In 白虎通 *Po hu t'ung*, on the other hand, the Nine comprise four of one's father's relatives, three of one's mother's, and two of one's wife's.

[6] I have not met this category elsewhere, though 六親 'The Six Relations' is common enough. The latter are generally taken to be father, son, elder brother, younger brother, husband, wife. (See commentary by 王弼 Wang Pi on *Lao tzŭ*, XVIII.) In the present passage, of course, both 九族 and 五親 are used vaguely for relations in general, especially those living together under one roof.

[7] 仕 for 事.

[8] A quotation from Odes, I. 1. i. 1.

[9] Apparently referring to her moral influence.

[10] Cf. *Tso chuan*, 哀公 XVI, § 3: 旻天不弔, 不憖遺一老 'Heaven gives me no comfort, and has not seen fit to spare me this one aged Minister [Confucius]'. This is probably an echo of the similar passage in Odes, II, 4. ix. 6.

Inscription on the tomb of the Lady T'ang of Chin-ch'ang[1], wife of the *chung-lang* Wang Po-yü[2], who at the age of seventy-three was encoffined and buried in this tomb, on the *ting-wei* day, the twelfth of the first moon, the first day of which was *ping-shên*, in the *i-yu* year, the second of *Yen-shou*[3].

III. **Ast. ix. 3.** (Transcript and very poor photograph.)

延壽五年戊子歲九
月乙巳朔廿日甲子
故太原王王伯瑜初
民部參軍轉碑堂將
遷殿中中郎將春秋
七十二殯葬斯墓

On the *chia-tzŭ* day, the twentieth of the ninth moon, the first day of which was *i-ssŭ*[4], in the *mou-tzŭ* year, the fifth of *Yen-shou*[5], at the age of seventy-two, Wang Po-yü, late Prince of T'ai-yüan, who was first *ts'an-chün*[6] in the Ministry of Population, became General of the Hall of Tablets, and was promoted to be *tien-chung chung-lang chiang*[7], was encoffined and buried in this tomb.

IV. **Ast. i. 4.** (Transcript and very poor photograph.)

貞觀廿年歲次丙午
六月辛酉朔廿七日
騎都尉張延衡妻
麴氏春秋五十有
二卽以其年六月
廿八日殯葬斯墓

On the twenty-seventh day of the sixth moon, the first day of which is *hsin-yu*, in the *ping-wu* year, the twentieth of *Chêng-kuan*[8], the Lady Ch'ü, wife of the *chi-tu-wei*[9] Chang Yen-hêng[10], [died] at the age of fifty-two, and was encoffined and buried in this tomb on the twenty-eighth day of the sixth moon in the same year.

[1] A town 50 *li* to the north of 瓜州 Kua Chou. It was the site of the Jade Gate at the beginning of the T'ang dynasty.

[2] See Inscription No. III.

[3] 24 February, 625. *Yen-shou* is another year-title of the dynasty at Kao-ch'ang.

[4] According to Père Hoang's tables, *i-ssŭ* was the second day of the ninth moon.

[5] 22 October, 628.

[6] The *ts'an-chün*, or Military Councillor, was a person of considerable importance towards the end of the Later Han dynasty. As time went on, he was divested of his military functions and became to all intents a civil official.

[7] 'General of the *chung-lang* in the Palace.'

[8] 13 August, 646.

[9] In the T'ang dynasty, this was merely an honourable distinction bestowed as a reward for merit on those who were holding no official post.

[10] See Inscription No. V.

V. **Ast. i. 4.** (Transcript and very poor photograph.)

貞觀廿年歲次丙午十
月已未朔廿一日乙卯新
除侍郎轉門下校郎遷洿
林令遷陵江將軍洿林令
如故更遷陵江將軍○部
長史後遷倉部郎中洿林
令如故大唐統御澤被故
老蒙授騎都尉春秋八十
有二張延衡之墓表

The *i-mao* day, the twenty-first of the tenth moon, the first day of which is *chi-wei*, in the *ping-wu* year, the twentieth of *Chêng-kuan*[1]. Inscription on the tombstone of Chang Yen-hêng, who was *hsin-ch'u shih-lang*[2], and subsequently *mên-hsia chiao-lang*[2], transferred to the post of Magistrate of Wu-lin, then to that of *Ling-chiang chiang-chün*[3], and again made Magistrate of Wu-lin; once more he was appointed *Ling-chiang chiang-chün* and Recorder to the Board of [ ]; later on he was made Senior Secretary to the Board of Public Granaries, after which he became Magistrate of Wu-lin as before. When the Great House of T'ang consolidated its imperial sway, its gracious bounty extended to the elders[4], and he was invested with the dignity of *chi-tu-wei*[5]. [He died] at the age of eighty-two.

VI. **Ast. ix. 4.** (Transcript and good photograph, Pl. CXXVII.)

維貞觀廿二年歲
次戊申五月辛巳
朔廿日庚子新除
雲騎尉王歡岳春
秋六十有七郎以
其月廿日奄喪老
年殯葬斯墓

On the *kêng-tzŭ* day, the twentieth of the fifth moon, the first day of which is *hsin-ssŭ*, in the *mou-shên* year, the twenty-second of *Chêng-kuan*[6], Wang Huan-yo, who was *hsin-ch'u yün-chi-wei*[7], [died] at the age of sixty-

[1] 3 December, 646.

[2] Officials in the Imperial Household. For 新除 see *P'ei wên yün fu*, ch. vi, f. 136 v°.

[3] A hyperbolical expression meaning literally 'General who marches across rivers'. See the account of Kao-ch'ang in 北史 *Pei shih*, ch. xcvii, f. 7 v°, where five grades of General are enumerated, namely 建武, 威遠, 陵江, 殿中, and 伏波. Professor O. Franke wrongly takes these to be place-names ('Eine chinesische Tempelinschrift', p. 26).

[4] Of the *ancien régime*: old men who had done good service under the preceding dynasty.

[5] See Inscription No. IV, note 9.

[6] 16 June, 648.

[7] One of those official posts without corresponding functions which were originally called 散官 'sinecure offices', and under the T'ang dynasty 勳官 'offices conferred for merit'.

seven, and on the twentieth[1] day of the same moon, having sunk beneath his load of years, was encoffined and buried in this tomb.

VII. **Ast. ix. 1.** (Transcript and good photograph, Pl. CXXVII.)

惟永徽三年歲次壬
子九月乙卯朔十六
日庚午新除侍郎轉
殿中將軍屬大唐啟
運澤被西州授驍騎尉春
秋七十四王歡悅之墓表

The *kêng-wu* day, the sixteenth of the ninth moon, the first day of which is *i-mao*, in the *jên-tzŭ* year, the third of *Yung-hui*[2]. Inscription on the tomb of Wang Huan-yüeh[3], aged seventy-four, who was *hsin-ch'u shih-lang* and subsequently *tien-chung chiang-chün*[4], and after the inauguration of the Great T'ang dynasty, whose gracious bounty extended to Hsi-chou, was invested with the dignity of *hsiao-chi-wei*[5].

VIII. **Ast. ix. 2.** (Transcript and very poor photograph.)[6]

○○○○○○前官○○仕
夫○○○字○○英西州高
行不○言軌外彰言歸○族
○勞無乖姬姜養志以乾封
艮醫無驗妙藥無婁以十一
○十有一遂使宗親輿志路
西北○之禮也○○禮教無
爲銘日
鲞○書照　燭○晨燃　○
○○○授　奄影生天　宗
○○○○　○淚如泉

[1] Perhaps a mistake in the transcript; if not, the first date may refer to the burial, and the second be merely a repetition. Cf. No. IX, note 7.

[2] 23 October, 652. This date seems to refer to the erection of the tombstone.

[3] Doubtless the elder brother of Wang Huan-yo in No. VI, the first character in their personal names being the same. For further details about him, see No. IX.

[4] See No. III, note 7.

[5] 'Valorous cavalry commander': a purely honorary title.

[6] Readers are requested to bear in mind that each column of this inscription runs on to the next page.

○童氏○○○
昌縣人也幼○○○○
貞明爲志恭愼在○
二年九月上旬○○○○
月十八日丑辰卒於○室○○
泣停歌以十二月四日葬○○
○母儀可紀嘉猷○

○命盡 氣疾○○
親○志 路泣稱○

The Lady T'ung [1], [wife] of [Fan Yen-]shih, a former official [2] . . .

This lady . . . was styled [Chên-]ying, and was a native of Kao-ch'ang Hsien in Hsi-chou. When young, . . .; [in all her] conduct there was no [shortcoming [3]], her forms of speech [4] were noised abroad. When she came amongst her [husband's] kin [5], she made purity and brightness [6] her aim, [cherished [7]] the virtues of respect and attentiveness, was . . . hard-working and free from perversity—a noble lady [8] who gratified the wishes of her mother-in-law [9].

[1] This is the same lady that appears as 董氏 Lady Tung in the colophon numbered Ast. ix. 2. 053, so that 童 is probably a mistake of the transcriber. From the same source we are able to reconstruct the name of the husband 氾延仕 Fan Yen-shih, whose own memorial inscription is No. XII of this series, and the lady's religious 'style' 眞英 Chên-ying, which was assumed when she became a lay member of the Buddhist Church.

[2] No reference is made in No. XII to his having held any official post.

[3] Restoring the text so as to read 一行不虧.

[4] 言軌 *yen kuei* is a curious expression which seems the more suspicious because of the similar-sounding 言歸 that follows.

[5] These words so obviously refer to her marriage that I am driven to conjecture 夫族 instead of the more familiar 宗族. In *Odes*, II. 4. iii. 1. we have the lines 言旋言歸, 復我邦族, but there the speaker is a wife who wishes to return to her own kith and kin. Strictly speaking, 于 (not 言) 歸 should be used of marriage: see *Odes*, I. 1. vi.

[6] Predicated of the sun and moon in the *I ching*.

[7] The missing word may be 懷: 'in her bosom'.

[8] Literally, 'a Chi or a Chiang'. 姬 was the clan name of the Yellow Emperor, derived from a river, which was afterwards inherited by the House of 周 Chou. Similarly, 姜 was the clan name of the Emperor Shên Nung, also derived from a river; it was inherited by the ruling house of 齊 Ch'i. These were the two noblest surnames of ancient China. See the quotation from an ode, now lost, in *Tso Chuan*, 成公 IX, § 10: 雖有姬姜, 無棄蕉萃 'Though your wife be a Chi or a Chiang, do not slight the sons of toil.' Thus 姬姜 came to be used as a complimentary epithet for any great lady.

The present passage, however, is complicated by a further allusion to 列女傳 *Lieh nü chuan*, ch. v, f. 27, which throws light on the following words 養志. We read there that the wife of one 姜詩 Chiang Shih was most attentive to the wants of her mother-in-law, and used to rise at cock-crow in order to bring her fresh drinking-water from a river seven *li* distant. Once, however, she was prevented by stormy weather, and her husband sent her away in disgrace. She took lodging in a neighbour's house, and with the proceeds of her spinning purchased delicacies which she got her friend to convey regularly to her mother-in-law. At last the latter made inquiries, and discovered to her shame who the donor was, whereupon the wife was taken back. Shortly after, a spring of fresh water gushed forth near the house—heaven's recompense for such filial devotion.

[9] 養志 'nourishing the will', as opposed to nourishing the body only: see Mencius, IV. 1. xix. 3.

In the first decade of the ninth moon of the second year of *Ch'ien-fêng*[1] . . . she fell ill]: the best physicians were of no avail, the most excellent drugs could effect no cure, and at the *ch'ou*[2] hour on the eighteenth day of the eleventh moon[3] she died in her house [at the age of] . . .[4] This caused her kinsmen to lose their zest in life, and to cease from their songs as they wept by the roadside. She was buried on the fourth day of the twelfth moon[5] north-west [of the city], according to the [primordial] rites[6].

[She exemplified with credit] the teachings of the Ritual, and did not [fall short in] the duties of a mother[7]. Her wise counsels may be recorded, and . . . the following inscription has been composed for her tomb:—

Fireflies [do not[8]] shine by day,
Candles [are not[8]] lighted at dawn.
. . . . . . life's span exhausted.
Sickness . . . . . .
. . . . . . . . . bestow.
Her vanished shade will ascend to heaven[9].
Her kinsfolk, [losing[10]] their zest in life,
Weep by the roadside and praise . . .
. . . . . . . . . . . .
. . . tears like fountains.

IX. **Ast. ix. 1. 03.** (Transcript and good photograph; see also Pl. LXXV.)[11]

於秋忽翻秋知望殿君墓僞
斯七乾氏七堪鄉中志銘殿
墓十封天十部官之敎　中
　卽二夫有分　職孝　將
　以年早四強詔位悌君軍
　其十逝卽幹賜屬奉諱皇
　年二卽以灼驍大國歡朝
　其月日斯然騎唐忠悅驍
　月九孀晨遣之啟誠字尉
　十日居殯檑尉運代姓騎

[1] Towards the end of September, 667.

[2] Between one and three in the morning.

[3] The 8th of December. In Ast. ix. 2. 053 it is recorded that on this day several sūtras were copied and recited by monks on behalf of the deceased lady, Chên-ying.

[4] I would read 卒於[私]室[春秋五]十有一. From No. XII we learn that her husband died in 689, aged eighty-three, so that in 667 he would have been sixty-one. As the wife is usually younger than the husband, she may well have been fifty-one at her death.

[5] 24 December.

[6] Compare Nos. IX, XI, and XII, which point to the following restoration of the text: 葬[於城]西北[原]禮也. If 之 in the transcript is right, however, some other word than 原 seems to be required.

[7] 有功 or something similar seems to be wanted before 禮教, and 媽 may be inserted before 母: cf. No. X, col. 4; No. XI, col. 3.—According to Confucius, courtesy, modesty, gravity, and respectfulness were the virtues more particularly produced by a study of the Book of Rites: see *Li chi*, XXIII. 1.

[8] 非 or some other negative is wanted here.

[9] For the awkward phrase 生天 'to be (re)born in heaven' (?) I substitute here the more familiar 升天, which has the same sound.

[10] The missing word must be 喪, as in col. 6.

[11] Each column runs on to the next page, as before.

王〇〇〇夫人麴〇
王高昌都下也人惟
襲相丞拜授
澤被西州首
至都督歸國
天山縣丞經餘一載春
葬於城西北原禮也其夫人
訓女教男並已成立
卒於私第春
一日葬

Inscription on the tomb of [the Lady] Ch'ü, wife of Wang . . .[1], illegitimate[2] *tien-chung chiang-chün*, and *hsiao-chi-wei*[3] under the Imperial (T'ang) dynasty.

The said gentleman, with personal name Huan-yüeh, style[4] and surname Wang, was a native[5] of the capital city of Kao-ch'ang. In his private life he paid due regard to filial and fraternal obligations, and he served the State with loyalty and good faith. Having succeeded by inheritance to a high office at Court, he was given a post in the Imperial Palace. At the inauguration of the Great T'ang dynasty, its gracious bounty extended to the highly-placed country officials in Hsi-chou, and by Imperial order he was invested with the dignity of *hsiao-chi-wei*. When the Military Governor [of the province] returned to China, knowing that he was well qualified for an active appointment[6], his energy in affairs being manifest, he sent him as Deputy Magistrate to T'ien-shan Hsien; but he lived only one year more, his age then being seventy-four. On the morning of this day[7] he was encoffined and buried north-west of the city, according to the primordial rites.

His wife, the Lady Ch'ü, after the early death of her heavenly spouse, at once settled down in her widowhood to train her daughter and instruct her son, and both are now established in life. Suddenly, on the ninth day of the twelfth moon in the second year of *Ch'ien-fêng*[8], she died at her private house, aged seventy, and was buried in this tomb on the eleventh day of the same moon of the same year.

[1] Wang Huan-yüeh: see No. VII.

[2] The transcript has 爲, but this is certainly a mistake. 僞 was the term regularly applied to any local dynasty that assumed independence, or to its Ministers. For *tien-chung chiang-chün*, see No. III, note 7.

[3] Transposing 尉 and 騎.

[4] Omitted—perhaps because he had none.

[5] 也人 is another slip of the engraver for 人也.

[6] The clause is rather obscure on account of its conciseness. Perhaps 知 stands for 智, and 部 should be taken in a more special sense: 'his knowledge fitting him for duty amongst the frontier tribes'. In No. VII no mention is made of this appointment.

[7] To bury a person on the day of his death must have been an unusual proceeding, though it seems to have been done in the case of the centenarian Wang Ya-chê (see No. X). Moreover, no date has yet been mentioned in this inscription, so that perhaps it is better to understand 斯晨 as the day on which these words were written.

[8] 29 December, 667.

X. **Ast. (uncertain grave).** (Transcript only.)

○○元年歲次戊辰九月壬午朔
○○日已亥除薩納王雅者西州
○○○○也斯乃稟性純和景行
○○○○俱備百行無虧爲鄉里
○○○作室之棟樑何期逝川靡
○○○難留致使冬栢摧柯春蓧
○○一朝物化掩逐風光隣里悲
○○路摧泣仰思嘉德尙想餘風
○淚垂珠更添斑竹春秋一百有
○○○殞逝即以其日殯葬斯陵
○○悲號鄉閭痛惜鳴呼哀哉其
○○○○○○宗族號眺隣里痛
○○○○○○○○○○之土尒

The *chi-hai* day, [the eighteenth] of the ninth moon, the first day of which is *jên-wu*, in the *mou-ch'ên* year, the first [of *Tsung-chang*[1]].

The Ch'u-sa-na[2] Wang Ya-chê was [a native of . . .[3]] in Hsi-chou. His natural disposition was simple and friendly. His illustrious conduct[4] . . ., . . . both perfect. In all his acts there was no deficiency. He was the . . . of his village, the pillar[5] of his house: how could it be anticipated that he would pass away like running water? Not . . ., . . . hard to detain, causing the winter cypress[6] to be destroyed root and branch, and the spring shoots . . . One morning he was metamorphosed[7], following the play of wind and light: the neighbouring hamlets mourned . . ., beating their breasts and weeping on the . . .[8] highways, thinking with admiration of his noble virtues, meditating on his exemplary character[9], dropping . . . tears like pearls, and adding to the number of speckled bamboos[10]. He passed away at the age of a hundred and . . .[11], and on the same day he was encoffined and buried in this tomb[12].

. . . uttered cries of lamentation.
The whole countryside was overwhelmed with grief.
Alack and alas!

[1] 28 October, 668. Read 總章元年 . . . 十八日, etc. The day of the month is deducible, of course, from the cyclical name *chi-hai*; the reign-period from the fact that no other in the T'ang dynasty begins with the year *mou-ch'ên*.

[2] Taking Ch'u-sa-na as some foreign title. Or it might be a place-name: 'Ya-chê, Prince of Ch'u-sa-na'. In any case, it is clear that he was of non-Chinese origin.

[3] The missing words at the top of the third column are probably 高昌縣人: 'a native of Kao-ch'ang Hsien'. Cf. Nos. VIII and XII.

[4] A phrase borrowed from Odes, II. 7. iv. 5. It is usually interpreted as 'the great road', but here the meaning adopted in 辭源 *Tz'ŭ yüan*, 辰 36, seems preferable.

[5] Literally, 'the lesser and greater beams' forming the roof.

[6] The deceased is compared with the evergreen cypress on account of his hale old age: see *Lun yü*, IX. 27.

[7] A Taoist euphemism for death.

[8] The missing word is probably 巷 'lanes'.

[9] The phrase 餘風 occurs in *Shu ching*, V. xxiv. 8. Here it seems to mean the moral influence exerted by Wang which continued even after his death.

[10] When the Emperor Shun died at 蒼梧 Ts'ang-wu (the modern Wuchow in Kwangsi), his two consorts went thither to mourn for him, and wept so bitterly that their tears soaked into the bamboos and gave them a speckled appearance. This speckled variety of bamboo is still common in many parts of Hunan and Kwangsi.

[11] The second figure is missing.

[12] What follows is in verse. Cf. No. VIII.

He . . . . . . . . .
. . . . . . . . . . . .
His kinsmen wailed aloud,
The neighbouring hamlets were sorely . . .
. . . . . . . . . . . .
. . . . . . . . . . . .
The land of . . . . . .

XI. **Ast. ix. 5.** (Transcript and poor photograph.)

○○○○○○○○○○○○○○○
○○○○○○○○○○○○○○○
○○○○○○○○○○○○○○○
○○○○○○○○○○○○○○○
○○○○○○○抱○○○○○○○
○少乎愴○卒河○○年已○○○○
銘仕斯逝五於圖砥臺每妥言○○○
之之及川日任一礪閑以自滿德○○
云美量之葬所旦恒○恭竊鄉無人縣
尒年由嘆於壽風心衡謹齡閭嚮也故
　實受長州繹燭奠櫂爲之既冰稟○
　亦生悲城春俄應任美歲能玉志智
　○奄宗北秋追眉安既瑚敬居高○
　○殯族原卅以壽西得瑩上心明墓
　○○○禮有汞遐府名高順襟松○
　○○而也○淳　　　　　　　○
　　○　　　元

[Inscription on] the tomb of the late [ ] Chih[1] of . . . Hsien . . . He was a native of . . . His character was lofty and distinguished. The pine . . . virtues without failing. His heart was the abode of ice and jade[2], his affections . . . words filled the villages and hamlets. Since he was able to reverence those above him, obey . . . And so from the time of his earliest childhood he had the lustre of carved jade, of lofty . . . year. Always he made respect and courtesy the subject of his praise. When he gained fame . . . towers and pavilions. . . . He was selected for the post of prefect of An-hsi . . . embrace . . . perseveringly he worked for self-improvement. One might have hoped that he would be vouchsafed a hoary old age[3], long-enduring . . . Plan of the Yellow River[4]. One day the fate of the candle in the wind suddenly overtook him[5],

[1] The surname is missing. The rest of the column should probably read 之墓表也.

[2] It was as pure as ice, as incorruptible as jade.

[3] Literally, 'an old age of (bushy) eyebrows'.

[4] This was a diagram on the back of a dragon-horse which emerged from the Yellow River. It was copied by the Emperor Fu Hsi and made the basis of his Eight Trigrams. See *Tz'ŭ yüan*, 巳 45.

[5] A flickering candle symbolizes the uncertainty of human life. The 古樂府 'Old Song Treasury' has the couplet: 百年未幾時奄若風中燭 'Long before one approaches a hundred, one's life is like a candle in the wind.'

and in the first [year[1]] of *Yung-shun* . . . he died during his tenure of office, when the tale of his years was thirty-[          ]. . . . On the fifth day of [          ] he was buried north of the departmental city according to the primordial rites . . . sad; sighing over the stream that flows past[2]—a long-enduring grief; his kinsmen . . . and . . . ? [. . .[3]] finally he was encoffined . . . the youthful official's prime of life, truly also . . . inscribed thus.

XII. **Ast. ix. 2.** (Transcript only.)

君姓氾諱延仕高昌縣人也爲人雅素
識性清高教闡前庭聲餘
後部無那年餘順耳疾疫靜
纏藥石無徵哲人斯逝粵以示
昌元年歲次己丑九月壬申朔廿
六日乙亥卒於私第春秋八十有
三卽以其年閏九月三日葬於城西北
原禮也烏呼哀哉廼爲銘曰

This gentleman, by surname Fan, and personal name Yen-shih[4], was a native of Kao-ch'ang Hsien. His character was one of refined simplicity, his mental faculties were clear and lofty. While he expounded his teaching in the front court, his voice penetrated also to the back region[5]. Unfortunately, when he was little more than a year past sixty[6], a malignant disease laid hold of him, in which neither drugs nor probing were of any avail. Ah me! thus does the wise man pass away[7]. On the *i-hai* day, the twenty-sixth of the ninth moon, the first day of which is *jên-shên*[8], in the *chi-ch'ou* year, the first of *Yung-ch'ang*[9], he died at his private residence, aged eighty-three[10], and in the same year, on the third day of the intercalary ninth moon[11], he was buried

[1] The transcript has 九, which I imagine to be a mistake for 元, inasmuch as the *Yung-shun* period lasted only one year (A.D. 682).

[2] An allusion to *Lun yü*, IX. 16: 'Standing by a stream, the Master said: Thus it hastes away, never stopping day or night.'

[3] 斯及量由受生. I can make nothing of these words.

[4] Also mentioned in the colophon Ast. ix. 2. 053.

[5] That is to say, he was a professional teacher who did not neglect the education of his own family.

[6] 'For over a year he had been making his ear an obedient organ' (for the reception of truth)—an allusion to *Lun yü*, II. 4.

[7] Perhaps a reminiscence of the verse chanted by Confucius shortly before his death: 哲人其萎乎 'Lo! the wise man he withers away.' See *Li chi*, II. 1. ii. 20.

[8] This is a mistake: the first day of the ninth moon is 庚戌 *kêng-hsü*. *I-hai*, on the other hand, is the correct cyclical designation of the twenty-sixth day.

[9] 14 October, 689.

[10] This is surprising, when we consider that his fatal illness began more than twenty years earlier. I suspect an error in the transcript or in the engraving itself; perhaps 六十 'sixty' should be read instead of 八十 'eighty'.

[11] 21 October.

north-west of the city according to the primordial rites. Alas and alack! The following inscription has been made for his tomb[1].

XIII. **Ast. iv. 1.** (Transcript and good photograph, Pl. CXXVII.)

神功貳年臘月戊戌朔
貳拾捌日景丁西州高昌縣武
城城上輕車都尉前城主范羔
之靈正月貳日亡春秋七十有四
殯埋武城東北四里恐後歲月
奄久子孫迷或不分今立此至後
憑所依
神功貳年臘月貳拾捌日葬

The twenty-eighth day, *ching-ting*[2], of the sacrificial moon, the first day of which is *mou-hsü*[3], in the second year of *Shên-kung*[4].

The spirit of Fan Kao, commander of light chariots in the city of Wu-ch'êng in Kao-ch'ang Hsien, Hsi-chou, and formerly chief of the city walls[5], departed on the second day of the first moon[6]. His age was seventy-four. He was encoffined and interred four *li* north-east of Wu-ch'êng. For fear lest his descendants at some distant time in the future should be in doubt as to the exact year and month [of his decease and burial], the present tablet has been erected as trustworthy evidence.

He was buried on the twenty-eighth day of the sacrificial moon of the second year of *Shên-kung*.

[1] Cf. No. VIII. But here the verses are wanting.

[2] 景 was commonly substituted for 丙, which was taboo under the T'ang dynasty. 丙 and 丁 are the third and fourth of the 'celestial stems', and according to *Li chi*, IV. 3–4, they designate the days of the three summer months. Here it is obviously a name for the twenty-eighth day of the sacrificial moon: this may be one of the calendaric innovations of the Empress Wu (see note 4).

[3] This does not agree with Père Hoang's tables. The mistake may have arisen from confusion with the cyclical name of the year, which happens in 698 to be *mou-hsü*.

[4] 14 February, 698. This date falls within the reign of the usurping Empress, Wu Tsê-t'ien, and accordingly we find that her peculiar characters are substituted for 年, 月, 日 and 正. In conformity with the new regulations which remained in force from 690 to 704, the year began with what had previously been the eleventh moon, under the name of 'Initial moon'. This was followed by the twelfth or 'sacrificial moon', and then only came the 一月 'first moon'.

The reign-period *Shên-kung* did not extend into a second year, but lasted only from the beginning of the ninth to the end of the intercalary tenth moon of 丁酉 (September 21–December 19, 697). Hence we may infer that the adoption of the new year-title in September was known in Kao-ch'ang by the following February, but not the further change which took place in December.

[5] I take this to mean, 'in charge of the fortifications'.

[6] 21 December, 697.

## II

## INSCRIPTIONS ON SHROUDS OF CLOTH

(See above, p. 708; Pl. CXXVII)

### No. 1.

**Ast. ix. 2b. 011.**

**婺州信安縣顯德鄉梅山里祝伯亮租布一端光宅元年十一月日**

One *tuan*[1] of 'rent' cloth[2] from Chu Po-liang[3] of Mei-shan Li, Hsien-tê Hsiang, Hsin-an Hsien, Wu Chou[4]. On a day in the eleventh moon of the first year of *Kuang-tsê*[5].

### No. 2.

**Ast. ix. 2a. 07.**

**婺州蘭溪縣瑞山鄉從善里姚羣(?)庸調布一端神龍二年八月日**

One *tuan* of *yung* and *tiao* cloth[6] from Yao Ch'ün of Ts'ung-shan Li, Jui-shan Hsiang, Lan-ch'i Hsien[7], Wu Chou. On a day in the eighth moon of the second year of *Shên-lung*[8].

[1] A cloth measure, variously given as equal to 2 丈 *chang* (20 Chinese feet) or 1 *chang* 8 尺 *ch'ih* (18 feet).

[2] The character before 布 is not easy to read, but there is some reason for believing it to be 租; this would be the rent on land, paid not in money but in the produce of the soil: see below, note 6. The term occurs in the commentary on 吳志 *Wu chih*, ch. iv, f. 3 r°.

[3] The character 亮 is torn in half, and would not be legible were the personal name not repeated, apparently for reference, on the lower portion of the strip; this has been stitched on so that the two fragments of the inscription are now at opposite corners of the whole piece.

[4] Now Chin-hua Hsien in the province of Chekiang. The *li* is a territorial division of the *hsiang*, as the *hsiang* is of the *hsien*, and the *hsien* of the *chou*.

[5] 12 December, 684–10 January, 685. *Kuang-tsê* was the first reign-title assumed by the usurping Empress Wu (武后) when she seized the reins of government in the ninth moon.

The inscription is stamped with three impressions of a red seal, about 5 cm. square, containing four characters which unfortunately are too faint for me to decipher.

[6] Here we obtain an interesting glimpse of what was known as the *tsu yung tiao* system of taxation (租庸調之法) in actual operation. The system is explained in *Hsin T'ang shu*, ch. li, ff. 1–2:

授田之制，丁及男年十八以上者人一頃，其八十畝爲口分，二十畝爲永業···丁歲輸粟二斛，稻三斛，謂之租。丁隨鄉所出，歲輸絹二匹，綾絁二丈，布加五之一，緜三兩，麻三斤，非蠶鄉則輸銀十四兩，謂之調。用人之力，歲二十日，閏加二日，不役者日爲絹三尺，謂之庸。有事而加役二十五日者，免調，三十日者，租調皆免。

The regulations for the allotment of land provided that every *ting* (an adult male between twenty-one and sixty) and other male person aged eighteen and upwards should receive one *ch'ing* (100 *mou*, or rather more than 12½ acres under the T'ang dynasty), of which 80 *mou* were *k'ou-fên* (individually leased) and 20 *mou* were *yung-yeh* (permanent property). In return, he paid yearly 2 *hu* (a measure of capacity equal to 100 斤 catties or 1 石 stone in weight) of millet or 3 *hu* of rice. This was called *tsu* (rent). In addition, according to what was produced on his estate, he paid a yearly tax consisting of two pieces (each 4 *chang* in length) of *chüan* (a thick, coarsely woven silken fabric), or one 20-ft. roll of *ling* (with sheeny, glazed surface: something like satin or lustring?) or *shih* (a kind of sarcenet?), or more by one-fifth if he paid in hempen cloth; also 3 ounces of floss silk, or 3 catties of raw hemp. If there was no silk-cultivation on his estate, he paid 14 ounces of silver instead. This tax was called *tiao* (collection). Military service was exacted on twenty days in the year, or if there was an intercalary moon, for two days more. Those who did not serve had to pay a 3-ft. length of *chüan* daily. This was called *yung* (service). When there was trouble, those who served for an additional

## III

## CHINESE CHARACTERS ON FIGURED SILKS

**L. C. 03.**

(See above, i. p. 246; Pl. XXXV.)

昌樂

'Resplendent joy.'

**L. C. 07. a.**

(See above, i. p. 247; Pl. XXXIV.)

韓仁繡文厷吉子孫無亟

'May this decorative pattern of Han Jên bring great good fortune to his descendants (for generations) without end.'

M. L. Aurousseau has discussed this sentence at some length in the *Bulletin de l'École Française d'Extrême-Orient*, 1920, Pt. 4, p. 175, and reads it thus:—

韓仁繡叉(?)宏吉子孫萬世

'Broderie de Han Jen . . . grand bonheur (à vos) enfants (et) petits enfants (jusqu'à) dix mille générations.'

韓, of course, is a surname, so that 仁 can hardly be anything but the personal name (名). At first I was inclined to take 仁 繡 together as forming a rather more likely name; but, on the other hand, the fourth character is almost certainly 文, which gives exactly the meaning required in combination with 繡. As M. Aurousseau points out, 厷 stands probably for 宏 'great'. The last two characters are the most perplexing, and 萬 世 seems to be only a rather wild guess, in order to make the sense obviously needed, without much regard for their actual shape. In the reading which I offer, 亟 would stand for 極, the character being written without its radical, like 厷 above. According to K'ang Hsi, the two forms are interchangeable. 無 極 is a very common locution, of which no fewer than twenty-one examples are given in the *P'ei wên yün fu*. My reading as a whole is supported by the nature of the design on the brocade, consisting as it does of six auspicious animals displayed on a background into which certain birds and other objects of good augury are worked.

[The sixth character in the sentence (which is not very accurately reproduced in Mr. Andrews's article in the *Burlington Magazine* for July–September, 1920) is so doubtful that I am tempted to suggest the alternative reading 厷 (or possibly 法) 者. The meaning then might be: 'May Han Jên-hsiu and Wên Kung-chê have

period of twenty-five days were exempted from the *tiao* tax, and those who served for thirty days were exempted from both *tsu* and *tiao*.'

The corresponding passage in *Chiu t'ang shu*, ch. xlviii, f. 3, differs in a few details. The laws dealing with land are assigned to the year 624, and the term 世業 (i.e. 永業) is explained as land which after the owner's death descended to his heir, whereas 口 分 was land that reverted to the State and might be allotted to some other individual. The *tiao* tax is said to have consisted of '20-ft. rolls of *ling*, *chüan*, or *shih*, or a quantity of hempen cloth greater by one-fifth. Those who paid in these silken fabrics also contributed 3 ounces of floss silk; those who paid in cloth contributed 3 catties of raw hemp.' Finally, the period of extra service exempting one from the *tiao* tax is given as fifteen instead of twenty-five days.

[1] Lan-ch'i Hsien still exists under the same name.

[2] 12 September–11 October, 706. The mark inserted before the date may be an abbreviation of 斤 兩 'catties and ounces', together with a numeral, indicating the weight of the *tuan*. After 年 comes another mark which I cannot identify, and at the end the character 緒, of doubtful meaning in this connexion, is written with the same brush.

There are four red seals on this piece, each 5·5 cm. square. The first contains four characters, of which only the last two (之 印 'seal of . . .') are decipherable. The second appears to consist of eight characters, the last two again being 之 印. The third seal may be a repetition of the second, but the fourth is quite illegible.

descendants without end'. In favour of this interpretation is the fact that the two characters 仁 譜 form a very close and isolated pair. The occurrence of 者 in a personal name is paralleled in the Tomb Inscription No. X, where we find the name 王 雅 者 Wang Ya-chê.]

**L. C. o8.**

(See above, i. p. 248; Pl. XXXIV.)

登高明望四海

'Ascend to places that are high and bright, whence you may look over the Four Seas (the whole Empire).'

This seems to be a reminiscence of *Li chi*, IV. 2. ii. 18: 仲夏之月, 可以居高明, 可以遠眺望 'In the second month of summer, people may live in buildings high and bright, and may enjoy distant prospects.'

The radical of the last character is wanting, but the reading is certain.

**L. C. i. o9.**

(See above, i. p. 250.)

萬

'Myriad'.

**L. C. ii. o3.**

(See above, i. p. 251; Pl. XXXIV.)

延年益[壽]

'May your years be prolonged (and your longevity) increased

The last character of the propitious formula was supplied by Mr. Chiang.

**L. C. ii. o7. a.**

(See above, i. p. 251.)

[長]樂明光

'May your joy be (constant) and your faculties bright!'

I infer the first character from L. C. iii. o11.

**L. C. iii. o1.**

(See above, i. p. 252; Pl. XXXIV.)

永

'Ever-enduring.'

**L. C. iii. o11.**

(See above, i. p. 253; Pl. XXXIV.)

長樂明光

Same as L. C. ii. o7. a.

**L. C. vii. o2.**

(See above, i. p. 257; Pl. XXXV.)

孫子宜錦世續

'May your posterity continue to adorn each succeeding generation.'

錦 is literally 'to embroider'—an allusion to the figured silk fabric on which the sentiment is expressed.

# APPENDIX K

# INVENTORY LIST OF MANUSCRIPT FRAGMENTS IN UIGHUR, MONGOL, AND SOGDIAN

BY

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## I.—MANUSCRIPT REMAINS FROM TURFĀN SITES

### A.—DOCUMENTS EXCAVATED AT KARA-KHŌJA

**Kao. III. E. 04–6.** Document in Uighur cursive Turkī, almost illegible. The document has been used, evidently, to clean a Chinese official's great seal after use; it is saturated with cinnabar.

Small fr. of paper with a few Turkī words on each side in cursive Uighur characters.

A piece of coarse stuff from the border of a temple flag with a piece of silk attached. On the silk, dim Uighur letters.

*06.* Several pieces of Uighur documents pasted together. One piece shows some Turkī words in beautiful bold characters belonging to the good epoch.

### B.—MANUSCRIPT FRAGMENTS PURCHASED AT KARA-KHŌJA

**Kara-khōja. 0112–0116.** *0112.* Small scrap of Chinese Buddhist Sūtra, on back a few words in Turkī (Uighur).

*0115.* Small scrap of Chinese Buddhist Sūtra, on back a few words in Turkī, probably remains of a Buddhist confession (*kṣānti?*).

*0113, 0114, 0116.* Three small frs. of large Uighur Pōthī leaf.

**Kao. 014.** Printed leaves said to have been found at Tuyoq. Evidently some leaves of a recent Mongol (Manchu?) block-print done on very thin brownish paper.

### C.—MANUSCRIPT REMAINS EXCAVATED AT MURTUK

**M.B. II. 01–05.** *01–03, 05,* frs. of a large Uighur Pōthī leaf, badly rubbed. Language Turkī, stiff brownish paper.

*04.* Small fr. of block-print in Turkī, soft whitish paper.

**M.B. II. 06–09.** *06, 09.* Two small frs. of large Uighur Pōthī leaf (Turkī).

*08.* Very small fr. of large Uighur Pōthī leaf; three indistinct words in cursive Uighur characters.

*07.* Piece of Chinese Buddhist block-print, on coarse yellow paper.

**M.B. III. 015–019.** Five small pieces of Chinese Buddhist texts; Uighur cursive writing (late) on back.

**M.B. IV. 03.** Fr. of thin paper, 10 × 9½ cm., with about 12 ll. of Turkī text in Uighur cursive writing. Seems to treat of (propitious and unpropitious?) days. This fr. is too fragile to allow of much handling.

**M.B. IV. 04.** Fr. of Uighur block-print (folding book). Three bottom ll. of leaf, treating of the 'time that has not come yet' (Turkī).

**M.B. V. 02.** 26·5 cm. × 17·3 cm. Uighur document; letter in Turkī. Very careless late cursive writing, treating apparently of a feast (*toi*) and a number of things (amongst them a mirror) to be sent. The letter begins with the sentence 'My word' and ends with a complicated *rubrica*. Like many modern letters in that country, it is folded up into a slip (2 cm. broad), to be carried in the head-dress or girdle. Pl. XXXVI.

**M.B. V. 03–4.** Two small frs. with illegible Uighur writing.

**M.B. VI–VII. 01, 02.** *01.* Fr. of a small Pōthī leaf of possibly 5 ll. in stiff Uighur writing (Turkī). On margin remains of the pagination. Thin whitish paper, 10 cm. high.

*02.* Fr. of small Pōthī leaf, 11 cm. high, 6 ll., no writing on back. Stiff brownish paper.

**M.B. IX. 02–04.** *02.* Small fr. of Chinese MS. roll with Thousand Buddhas stamped on in red ink (very little remaining).

*03.* Small fr. with illegible Uighur cursive.

*04.* Part of a Uighur document in very cursive characters (Turkī). Rough paper, very brittle. Study can only be undertaken after careful treatment. There are about 13 ll., some defective, on a space of about 21 × 17 cm. Some illegible writing on back.

**M.B. XII. 04–08.** *05.* Fr. of Chinese Buddhist text with some cursive Uighur writing on back.

*06.* Corner of Uighur Pōthī leaf (Turkī).

*07.* Corner of Uighur Pōthī leaf (Turkī).

*08.* Small fr. of Uighur Pōthī leaf (Turkī).

**M.B. XII. 09–010.** *09.* Fr. of a document in Uighur cursive of earlier character, but hardly legible.

*010.* Very small piece with a few Uighur characters.

## D.—MANUSCRIPT REMAINS FROM TOYUK

**Toy. I. ii. 010.** Fr. of Chinese Buddhist text. On back remains of some 10 ll. of Soghdian text in a fair running hand.

**Toy. III. 031.** Badly preserved fr. of Uighur document (Turkī). Small fr. Soghdian.

**Toy. III. ii. 03.** *a.* Very small piece of a leaf composed of two sheets of paper ('parts' of a Chinese book-roll) pasted together. Uighur. *b.* L.-hand side of a Uighur (Turkī) document much cut up. Only the line endings preserved. On back other cursive Uighur writing. Too much defaced and cut up to allow of study in its present state. Pl. CXXVI.

**Toy. IV. 089.** Frs. of Chinese texts with illegible Uighur (Turkī) on back.

**Toy. IV. i. 01.** A few frs. of a Chinese book-roll. On back, very badly soiled, a number of Turkī words, uncial letters (of the Uighur alphabet) of rare and interesting form. These are the most interesting frs., to my thinking, in the whole collection; we have but one or two scraps with badly executed specimens of these letters. They are hard to read.

**Toy. IV. iii. 02.** *a.* Uighur document (about 12 × 11·5 cm.), very thin paper, very cursive writing. *b.* Remains of a receipt, Uighur writing (Turkī). Three ll. of cursive script on large piece of coarse document paper, 25/7 × 10 cm. *c.* Bone with a few illegible Uighur characters.

**Toy. IV. vi. 01.** Small piece of paper with cursive Uighur writing.

**Toy. IV. vii. 01.** *a.* Three small pieces of Chinese text. *b.* 1 small fr. with one l. cursive Uighur writing (Turkī). *c.* 1 small fr. from well-written Uighur Pōthī leaf (Turkī).

**Toy. IV. vii. 02.** *a.* Upper part of a piece of Chinese MS. book-roll. On back clumsy Uighur cursive writings (attempts of an illiterate person). *b.* Document, very badly crumpled and blotted; cursive Uighur writing (Turkī). Whitish paper. *c.* Document, torn, crumpled, and blotted (only part of the L. side of document). *d.* Piece of stout paper with four attempts to write Uighur (Turkī) words. *e.* Fr. of small-lettered block-print, badly soiled.

**Toy. 040.** (Purchased.) Four leaves of Uighur block-print folding book in original order of attachment; in fair preservation. Five ll. to each leaf. Dhāraṇī. The Sanskrit words in Brāhmī characters placed inverted over the corresponding groups of Uighur letters. Size of each leaf: 26 × 10·9 cm. Pl. CXXV.

## E.—MANUSCRIPT REMAINS PURCHASED AT YĀR-KHOTO

**Yār. 041–58.** *041, 048.* Two pieces of the same document in cursive Uighur, Turkī. Begins on 048 with name '*Il Almïš sängün*', at the end 'hand over' (*birgil*). There is mentioned a bed.

*042.* Small fr. of document, one word '*bilgälärim*' complete.

*043* Small fr. of document, *äzümüz* and *ädgü* legible.

*044.* Corner piece; legible words *balïy tägminip.*

*045, 47.* Small pieces.

*046, 046 b, 050.* Three frs. of an Uighur book-roll (Turkī).

46. 'having washed (and) cleansed their bodies ......'
'having thought ........ Tenthly .........'

46 b. 'my mother ......'

50. 'The god of gods, B(uddha) ......
'The animated beings ......'
'joy ......
.........

*049.* Small piece with Chinese seal impression.

*051.* Larger document, much torn, beginning with *küskü yïl*, 'in the mouse year'.

*052.* Document, writing on both sides, beginning *lun yïl*, in the year 'dragon'.

*053.* Fr. from middle, bold writing.

*054.* Fr. from middle, name (?) *yäpking sali.*

*055.* Small fr. with one word; reading uncertain

*056.* Small fr., with parts of words only.

*058.* Small fr., illegible, one complete word. Fr. of Chinese book-roll. On back one word in Uighur characters.

## II.—MANUSCRIPT REMAINS FROM KHARA-KHOTO

**K.K. 0140. c.** Small fr., with illegible Uighur (Mongol?) characters on very thin brownish paper.

**K.K. 0151.** *A.* Uighur document in cursive characters (Turkī) on very thin whitish paper. It is torn in strips, and in too precarious a condition for examination at present. *B, C.* Two other similar frs. *D.* A fr. of Chinese on similar paper.

**K.K. 0152. aa–cc, u–z.** *aa–cc.* Three small frs. of Uighur documents on fibrous greyish paper (Turkī).

*u–z.* All small pieces of Uighur documents as above. Writing only to be deciphered where a number of consecutive lines facilitate the reading.

**K.K. I. 03.** *I. 03 d.* (?). Fr. of Uighur document, with a few Turkī words.

*I. 03. f.* Slip of soft brownish paper, margins defective, about 26 cm. broad, 11 high. Folded in middle, on each side 4 ll. in cursive Uighur characters. In placing the paper before you, the writing to the left of the fold can be read, that to the right is inverted. Pl. CXXVI.

**K.K. II. 269. b.** Fr. of a document on soft whitish paper. Writing, illegible Uighur cursive.

**K.K. V–VI. 010.** Fr. of Uighur document, one line, in cursive characters, extremely difficult to read.

## III.—MANUSCRIPT REMAINS FROM SITE IN ETSIN-GOL DELTA

**E.G. 013. a. xvii.** *a. xvii.* Large book leaf (Pōthī), Mongol, 17 ll. on each side, 23·8 × 9·6 cm.

**E.G. 013. a. x.** *a.x.* Smaller book leaf (Pōthī), 20·5 × 7·1 cm. 13 ll. on obv. (?), 14 ll. on rev. (?); 4 ll. in red ink on middle of obv., 5 ll. in red ink on middle of rev. (?).

**E.G. 014. a. xvii. i. ii.** Two small frs. of Mongol Pōthī leaves.

**E.G. 021. a–f.** *a.* Leaf, somewhat defective (31 × 12 cm.), white stout paper. 23 ll. Western Mongol MS. text. *b.* Pōthī (?) leaf, defective, stout whitish paper, 18·2 × 10·1 cm. 16 ll. MS. text, Western Mongol. Two ll. begin with a word in red ink. Rev.: 7 ll. of text. Rest of page occupied by a system of squares in red ink 10 high, 8 broad, 78 of which squares contain one or more Tibetan characters (calendar?). *c.* MS. Pōthī (?) leaf, 16 × 11 cm. Upper part yellowish brown paper. One side: 13 ll. of Western Mongol text. On the fourth l. from below one word in red ink, the writing on the third from below entirely in red ink, on the second one word in red ink. Other side: same number of ll. On the first and second some words in red ink, likewise on eighth from above. Torn across. *d.* Upper part of Pōthī (?) leaf, Western Mongol MS. text. 15 × 10·2 cm. (torn across). 11 ll. on each side. Pagination: arbin dörbön. Yellowish brown paper. *e.* Lower part of block-printed Western Mongol book leaf torn across. 12 × 10·4 cm. Whitish paper. At bottom pagination in Chinese and Mongol. *f.* Letter MS. Western Mongol (Qalmaq) text. 6 ll. complete, beautifully written on soft white paper. 20·7 × 26 cm. Folded into a slip 3·7 cm. broad. Pl. CXXVI.

**E.G. 022. a. xxiii–xxxi.** Ten very small pieces of Mongol MS.

*xxiii.* Lower end of Mongol MS. book leaf, with 5 ll. of three words each on one side. On the other side from one to three words on each line. Stiff brownish paper.

*xxiv, xxv.* Two pieces of Mongol MS. They had been pasted back to back so as to form one piece (part of a leaf), but have come apart. About 3 ll. on each side.

*xxvi.* Corner piece of Mongol MS. leaf (consisting of four thicknesses of thin whitish paper pasted together).

*xxvii.* Small piece from margin of Mongol MS. leaf, with remains of 4 ll.

*xxviii.* Very small fr. with a few chars. in cursive Tibetan (MS.).

*xxix.* Very small fr. of MS. letter in Mongol.

*xxx.* One line of Mongol MS. Letter or document.

*xxxi.* Fr. from margin of book leaf, Mongol MS. Remnants of 6 ll.

## IV.—MANUSCRIPT FRAGMENT FROM MAZĀR-TĀGH

**M. Tāgh. 0449.** A small piece of paper. Soghdian writing on one side, left-hand ends of five ll. Pl. CXXIV.

# APPENDIX L

## A TIBETAN INSCRIPTION ON THE DARKŌT PASS

TRANSLATED AND ANNOTATED

BY

A. H. FRANKE, Ph.D.

(See above, i. pp. 45 sq.; Fig. 46.)

*Text.*

རྨེའོར

ལིརྣི

དོར

ཀྱི

ཨོ
མ

*Translation.*

[Stūpa] of *Lirnidor*
[the man of] *rMe-'or*, *om*!

*Notes.*

*Lirnidor* is apparently the personal name of the erector of a Stūpa, and *rMe-'or* his clan-name or the name of his native place. In all ancient Tibetan names we find the clan-name, or the name of the locality from which a man comes, placed in front of the personal name. (See *La-dvags-rgyal-rabs*.) In many cases the clan-names are identical with the names of the locality from which certain people come.

The personal name *Lirnidor* does not appear to be of Tibetan origin. It may be Dard. The clan-name *rMe-'or* is distinctly Tibetan. It means something like 'Unclean mire', and evidently refers to the locality from which either *Lirnidor* or his family (clan) proceeded.

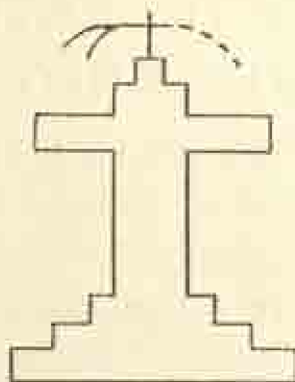
All the letters of the inscription show the characteristic marks of Tibetan script of the 8th or 9th centuries; see my article 'The Tibetan Alphabet', *Epigraphia Indica*, vol. xi, p. 271.

The *om* is extraordinary, as it is written in two characters, *o* and *m*, *o* above the *m*, the Anusvāra not being used.

The inscription belongs to a group which may be entitled 'records of erections of Stūpas'. Such inscriptions are found all over Ladakh, and several of them have been published by me. Most of them show the name of the erector in the instrumental case, followed by the word *bzheṅs-so*, 'erected'. It is only the most ancient

inscriptions which show the name in the genitive case (as for instance the present inscription). In that respect they follow the example of Indian inscriptions of a similar type, such as have been discovered near Khalatse, Ladakh. They are written in ancient Brāhmī, Kharoṣṭhī, and Śāradā. At first the Tibetans followed the Indians as regards the use of the cases.

The records are generally accompanied by representations of the particular Stūpas. The present design belongs to a group which remind us of Christian crosses. The most striking example of the cross-type was published by me in my article 'Notes on Rock-carvings', *Indian Antiquary*, vol. xxxi, 1902, p. 398, Plate VIII, as shown below:



The above inscription is of great importance, as it testifies to the conquest of Gilgit by Tibetans in the 8th century. This event is mentioned in the *La-dvags-rgyal-rabs*, as having taken place under Khri-sroṅ-lde-btsan in the 8th century, Gilgit being called by its Tibetan name *'aBru-shal*; cf. *Ancient Khotan*, i. pp. 8 sqq.; *Serindia*, i. pp. 52 sqq.

# APPENDIX M

# DESCRIPTIVE LIST OF ANTIQUES BROUGHT FROM KHOTAN

## AND PRESENTED BY H. I. HARDING, Esq.

CHINESE CONSULAR SERVICE

BY

F. H. ANDREWS, O.B.E.

[The collection of antiquities here described was obtained from Badruddīn Khān, of Khotan, by Mr. H. I. Harding, H. B. M.'s late Vice-Consul, Kashgar, and kindly presented by him on his passage through Kashmir in September, 1923, for inclusion in the Indian Government's Museum of Central-Asian Antiquities, New Delhi.

A number of interesting fresco panels, which were also presented by Mr. Harding, have since been set up by Mr. Andrews at the Museum, New Delhi, and will be separately catalogued with other mural paintings.

No definite information is available as to the provenance of the antiques here described. But it appears probable that they were brought to Khotan as a result of digging which villagers carried on at some ruins in the desert area covered with tamarisk-cones NE. of Domoko.—A. Stein.]

**Har. 01. Stucco relief fr.** Male head of Indian type, with half-closed eyes, well-arched eyebrows, small nose, mouth, and chin. Corners of mouth deeply indented; lips parted in smile; double chin. Round forehead is part of wreath of imbricated leaves on which are traces of burnt paint. Nearly half of R. side broken away, exposing clay core. 3½" × 2⅜". Pl. XII.

**Har. 04. 018. Two stucco relief frs.,** burnt. Standing Buddha figures from ground of halo of some larger figure. Both in Abhaya pose; from original models similar to *Ser.* iv. Pl. X, K.S. 001, 007. Both have lost their feet and lotus support. 04 has wing-like flame at each shoulder. 018 has remains of pink on upper robe and green on under garment at ankles. *04*, 4⅜" × 2½"; *018*, 5½". Pl. XII.

**Har. 06. Stucco relief fr.,** burnt. Human head in the round Indian type and having technical characteristics similar to the heads in *Ser.* iv. Pl. CXXIX.

The hollow at each end of mouth very strongly marked. Lines of eyebrows joined above nose by a concave wavy line. Two carelessly incised wrinkles above centre concave part of line. Hair, made in long wavy locks and applied separately, is extremely well modelled and distinctly Hellenistic. Much of it missing. Broken away at neck. 4¾" × 4". Pl. XII.

**Har. 07. Stucco relief fr.,** burnt. Elephant head and shoulders. Head to front in high relief, trunk curved up to L. and transversely ribbed on outer surface. Two tusks shown close to upper lip and resting on root of trunk. Face flat, with human eyes set rather close together and with circular jewel between.

Root of trunk rises just below in form of raised elliptical boss, the lateral ribbing of trunk being repetition of lower part of ellipse. Brow puckered in human frown; frontal protuberances strongly defined. Teeth visible in lower jaw R. and L. of trunk.

Ears spread rather flat R. and L. in a series of arched ribs with 'linen fold', lower edge resting on front of shoulders. Shoulders human, very broad and with strongly marked pectorals. Nothing below deltoid and pectoral, where modelling perhaps ended (now broken). Architectural detail. 6⅝" × 7½". Pl. XII.

**Har. 08. Stucco relief fr.,** burnt. Fr. of Gandharvī figure similar to Bal. 076. Legs and forearms broken away. Traces of pink paint. 4½" × 3½". Pl. XII.

**Har. 09. Stucco relief fr.,** burnt. Fr. of Gandharvī figure rising from lotus, similar to Bal. 050. Lotus missing and upraised hands broken away. Traces of pink. 3⅜" × 2⅝". Pl. XII.

**Har. 010–12. Three stucco heads,** burnt. Buddha type, of different sizes; part of nimbus behind each. Some black paint on hair of 011. In each the nose is rather short

and broad. 'Stippled' hair. All broken at edges. *010*, 2¼" × 2"; *011*, 1¾" × 1⅝"; *012*, 3⅜" × 3". Pl. XII.

**Har. 013–14. Two stucco relief frs.,** burnt. Seated Buddha figures from one mould, similar to *Ser.* iv. Pl. VIII, A.T. iii. 0089, and Bal. 055; but lotus halo broken away. 3⅜" × 2⅜". Plate XII.

**Har. 015. Frs. of terra-cotta monkey,** similar to Har. 016. Gr. fr. 3¼ × 2¼".

**Har. 016. Terra-cotta ornament,** from pottery vessel. Grotesque monkey, modelled in the round, squatting on part of wall of vessel and supporting a small bowl on his head.

The two arms upraised steadying the bowl. Treatment very stylized. Broad grinning sharp-cut mouth showing upper row of teeth; eyes, just two punched rings with straight gash at inner and outer angle; nose flat. Fur on body expressed by widely spaced dashes. Figure would appear to have been placed on upper curve of vessel near mouth. Broken and mended, but part of small bowl missing. (Cf. Yo. 0104, part of head; and *Ser.* iv. Pl. IX, A.T. v. 2, larger fr.) 6" × 4⅜". Pl. XII.

**Har. 019, 024. Frs. of stucco reliefs,** burnt. *019*, a seated Buddha fig. in pose similar to Bal. 066. Halo all missing. Head has been recently stuck on and does not seem to belong to this particular body although of the right type. L. p. knee and foot missing. *024*, head of exactly similar figure. *019*, 5¾" × 3¼". *024*, 1⅞" × 2 1/16". Pl. XII.

**Har. 020. Stucco relief fr.,** burnt. Fig. of Buddha seated on lotus with upward pointed petals, against plain circular halo (broken to L.). Fig. simply modelled and in Abhaya pose. Probably from halo of large figure. 4" × 3⅜". Pl. XII.

**Har. 022. Stucco relief fr.,** burnt. Yak in profile to L. Long hair of the body is indicated by a continuous fringe extending from under jaw to tail. Tail curled forward on quarter and brush-like. Horns and one hind foot missing. 5¾" × 3½". Pl. XII.

**Har. 023. Terra-cotta flask,** ovoid; broad end downwards and upper continued in narrowing neck which broadens into trumpet mouth. Two opposite rather straight loop handles descend from near lip to shoulders, where junctions are covered by human heads, one much larger than the other.

Seated on shoulder of flask between handles and resting against neck, two cross-legged 'Buddha' figures, one on each side of flask, of same type as Har. 013. Below and almost touching feet of each figure is a boar's (?) head to front with large upstanding ears. To R. on one side, grotesque human face wearing turban, or hair dressed to resemble turban. To L., grotesque animal head with large ears or horns and face-fringe of curly hair.

On rev. side, to R., a ram's (?) head and to L. a small 'Buddha' head. Whole very roughly made; coarse surface encrusted with salt. 6" × 3½". Pl. XII.

**Har. 025. Terra-cotta appliqué ornament,** from pottery vessel. Grotesque satyr mask, smiling; deep depressions at corners of mouth. Beard and hair form a border of volutes round face, the centre of each curl formed by deep depression. Ears high up and leonine; pupils of eyes, deep depressions. Nose broken away. Two-thirds of edge of mask broken away. 2¼" × 2½". Pl. XII.

**Har. 026. Fr. of terra-cotta ornament,** from vessel, consisting of upturned tip of lotus leaf of similar type to Yo. 0202. 2" × 2⅝".

**Har. 027. Terra-cotta appliqué head,** from wall of pottery vessel. A gargoyle-like head of fine design; prob. female, with narrow face, oblique eyes, small thin nose, and mouth slightly open. Hair is parted centrally and falls curtain-wise R. and L., turning down and under a circular ornament in position of ear. Hair is quite plain excepting an incised line near edge. This line turns at level of eyes and is carried horizontally back, the downward curling hair seeming to issue from beneath.

Over top of head and reaching to ear level is a folded cloth forming a smooth band. A distinct Gothic quality about the design. Small part of wall of vessel remains. 1⅞" × 1¼". Pl. XII.

**Har. 028. Fr. of terra-cotta vessel,** in seven pieces, forming part of shoulder of bulbous vase with narrow neck (mostly broken away). At junction of neck and shoulders, which is a continuous double curve, is a single incised annular line. Just below line is a line of incised Brāhmī characters very clearly and boldly written and almost complete. Body is fairly fine and outer surface polished, also inner surface of neck. No wheel marks; probably hand-finished. Diam. at lowest point of fr. *c.* 10"; gr. H. *c.* 4½". Pl. LVI.

**Har. 029. Fr. of carved wooden panel.** Buddha in Dharmacakra-mudrā, legs in Padmāsana, on lotus. This rests on high rectangular pedestal (or altar), covered by a cloth which has fringed edges outside plain narrow border and a field filled with lozenge diaper.

Figure wears jewelled ornaments: on breast a massive necklet; on arms, bands with daisy-like flower and bracelets; otherwise only a loin-cloth. High Uṣṇīṣa with wavy hair. Body halo treated with parallel very wavy lines.

To L. a figure to smaller scale stands on lotus with reversed petals in three imbricated rows; has narrow waist, drapery from hips to ankles. Upper part nude except for stole and necklet. On head a low flat coronet. Projections at shoulders, like tops of wings, may be parts of stole. Curious nimbus, plain centre surrounded by rays which are excessively short above head and increase in length as they approach lower border. Figure has R. p. hand raised in Abhaya-mudrā, L. p. hand down holding Amṛta jug.

Above this figure hangs end of drapery from canopy (broken away). Above canopy an ornamental border of which small piece only remains.

All above Buddha head and to R. broken away. Below, a band of five-petalled rosettes, dividing upper subject from lower. Lower all broken away excepting canopy of overhanging formal leafy fronds, each terminating at their lower

extremity in a six-petalled rosette. Musical instruments float in the air, of which a *vīṇā*, two drums, a flute, and another instrument are distinguishable.

Below and on a more recessed plane is upper margin of flame-bordered halo with field of radiations. Style recalls that of Gandhāra relievos. Split into two pieces now joined. 13" × 4½" × ⅞". Pl. XIV.

**Har. 030. Fr. of carved wood halo.** Outer border of small imbrications. Within field a floral scroll in large curves forming elliptical paterae; in each of these a stiff and narrow Buddha figure seated on lotus held on end of scrolled stem. Formal leaves furnish interscroll spaces. Background of each figure filled with radiating petals as halo to figure.

Two nearly complete figures are shown; above, part of a third which is framed by a border of imbrications similar to outer border and is not enclosed in stem scroll. All three figures are in Dhyāna-mudra. Fr. roughly chamfered on L. edge; curving edge broken away to R. and above. Perished. Pink stains near lower part. 8¾" × 3⅛". Pl. XIII.

**Har. 031. Fr. of wooden Buddha-like figure,** seated in Western fashion, enveloped in single upper robe which leaves R. p. arm, shoulder, and breast bare. Lines of drapery formal and well designed. Both hands and R. arm, head, and toes broken away. The pose of hands seems to have been Abhaya or some similar mudrā.

Remains of colour on robe, blue. Below hem of upper robe appears narrow piece of pink under-robe. 5¾" × 2⅜". Pl. XIV.

**Har. 032. Painted wooden panel.** A figure ¾ to L. standing upon a disk decorated with rows of yellow and red dots; in R. hand, which is at shoulder level, a long black staff or wand with lower end resting on ground. Upper end defaced.

L. hand in front of belt, palm down and fingers flexed as though grasping some dark object. Hair appears to be long and is topped by a broad pear-shaped helmet with red Triśūla or flame-like ornament. Elaborate costume consisting of sleeveless close-fitting steel-blue corslet of scales overlapping upwards; a white stripe on each scale.

At V-shaped neck opening a narrow scarf knotted at point and ends carried straight down to waist. A band of similar material borders each armhole. Upper arm covered with annular scales. Forearms with brown-yellow material figured with elliptical cartouches.

From narrow waist an all-round skirt reaches to ankles, varied by horizontal bands of different colours, of which the lowest three are pink, blue, and maroon. Upper is perhaps red but much abraded, with blue patches about thighs which may be remains of scale armour. Boots black. Nimbus petal-shaped and red bordered. Vesica is red bordered and has maroon outer border. Blue background above, red below, maroon at bottom. White double dashes spotted on red and maroon.

Traces of Brāhmī writing near bottom. Rough work but interesting costume. Badly abraded. Rev. plain. One top corner cut off obliquely, opposite corner broken. 11" × 5" × ½".

**Har. 033. Painted wooden panel.** Seated Buddha figure, head ¾ to L. Hands in lap, feet on opposite thighs, soles up. Red Langōṭī. Body either nude or in close-fitting skin-tight garment, with symbolic devices on all limbs and torso; similar to Har. 034. Red-bordered nimbus.

Very badly abraded. *Obv.* shows traces of paint. Two upper corners cut off; panel split in places. 9½" × 4¾" × ⅜".

**Har. 034. Painted panel.** *Obv.*: Buddha figure ¾ to R. in Abhaya-mudrā, standing on lotus with vesica and with nimbus. Tight-fitting pale buff robe seems to extend from necklet to just above ankles, and below shows a dark red border or a longer under garment. Remains of symbols visible on R. p. side of breast and on R. p. arm.

At shoulder a recumbent crescent carrying an eight-spoked wheel. On pectoral, an ellipsoidal flaming jewel. On forearm a Vajra, and on upper arm a Pōthī tied with black cord. Most of the colours are perished, but tints of buff, pale green, and red remain. On L. p. arm were probably same symbols as on R., but at shoulder was a sun instead of moon.

*Rev.*: Bodhisattva; full face, elaborate floral Mukuṭa from which seems to descend a veil or stole falling behind shoulders and passing over front of upper arms inside forearms to knees.

Figure is seated cross-legged on grey Padmāsana ornamented with pale blue rosettes and resting on a mound or rock (?) contained within a circular ring.

R. p. hand of figure is abreast and probably held some object, now missing. L. p. hand was lower, but has disappeared. Robe dark maroon, figured with grey lines which meander in pairs with ligatures at each change of direction, and roughly drawn guilloche within spaces enclosed by meanders. Under garment closely covering legs, green; forearm green with maroon at wrists. Body halo perhaps pink with bright blue border.

No nimbus. Ground below and behind halo rich red. Badly effaced. 10⅜" × 5" × ⅜". Pl. XIV.

**Har. 035. Painted wooden panel.** *Obv.*: seated figure in red Buddhist robe and wearing Mukuṭa. Badly effaced.

*Rev.*: four seated figures in two registers, one above the other. Figures of each pair look towards each other. Of the two top figures that to R. is best preserved; wears narrow-waisted grey-blue coat spotted with four-petalled rosettes; facings, cuffs, and hem of red similarly spotted. Black top-boots. R. p. hand in lap and L. p. raised to breast level as though holding some object. All other figures are too fragmentary to make out. Both lower persons have elaborate coiffures; L. figure seems to wear plate armour and the other a red and grey coat. Top corners cut off. Large deep split down centre. 9½" × 5" × 1⁵⁄₁₆".

**Har. 036. Painted wooden panel.** Two figures seated side by side, their heads slightly turned towards each other. Their body halos overlap. Figure to L. of Buddha

type in single red robe, hands in lap and a pearl tenia round base of Uṣṇīṣa. Figure to R. is in same pose, but the body is either nude except for loin-cloth, or clad in close-fitting skin-like garment.

Symbolic devices shown all over body and limbs. At neck is what at first sight appears to be a necklet; but it does not extend beyond the front of shoulders. Double concentric circles are on shoulders, L. p. breast, two on each forearm, and three on each lower leg. On upper arms is a Pōthī, on R. p. breast double concentric triangle.

Borders of nimbus and halo, dark red outlined buff. Field of nimbus dark green and of halo paler green. Lotus, green. To R. on red ground of panel part of a standing figure in long dark red and green robes banded with pearls; it seems to turn ¾ to R. but to look to L. in direction of two first. Perhaps a donor.

Where painting is rubbed off black Brāhmī writing appears, and on rev. are a few characters, showing this to be an old writing tablet used for painting. R. end corners cut off obliquely; near base of pointed end two holes drilled through, 2″ apart. A third hole drilled through junction of two halos. Condition abraded. $4\frac{5}{8}'' \times 7\frac{1}{4}'' \times \frac{3}{8}''$. Pl. XIV.

**Har. 037. Fr. of painted wooden panel.** *Obv.*: Standing Avalokiteśvara fig. holding in L. p. hand, near thigh, Amṛta flask. Lower part of robe red, stole probably dark green. All badly defaced, L. side broken away. Clumsy replica of Har. 042.

*Rev.*: All defaced excepting upper part of sketchily drawn head; full face, wearing simplified Mukuṭa. $10'' \times 2\frac{3}{4}'' \times \frac{1}{2}''$.

**Har. 038. Fr. of painted wooden panel.** Buddha figure seated, hands in lap, head ¾ to L. Red robe and background; dark blue body halo; purple nimbus. R. half broken away, upper part burnt, back charred. Rough work.

Intact side edge shows chamfer at back near bottom. At back the level of wood has been very slightly cut away for a width of about ¾″ as though to fit some kind of frame, and this part is not charred. It suggests that the burning occurred while the panel was still in its frame or support. $7\frac{3}{4}'' \times 2\frac{1}{4}''$.

**Har. 039. Painted wooden panel.** Only few traces of paint remain. Two holes are drilled in opposite long edges. $9\frac{3}{4}'' \times 2\frac{1}{2}'' \times \frac{7}{16}''$.

**Har. 040. Fr. of painted wooden panel.** R. p. half of standing Bodhisattva figure. Head ¾ to L., eyes cast down. Close-fitting red robe; green stole. R. p. hand raised to shoulder level. Nimbus, blue with red border. Perhaps Avalokiteśvara. Surface abraded; R. half of panel broken away. $9\frac{1}{2}'' \times 2'' \times \frac{3}{8}''$.

**Har. 041. Fr. of painted wooden panel.** *Obv.*: standing Buddha figure in Abhaya-mudrā. Blue hair, red upper robe, brown under robe. Bare feet resting on lotus seed pod. Upper corners of panel cut off and hole drilled at point. R. edge split away, also part of upper L. corner; two other splits in remainder of panel. *Rev.*: traces of drawing of seated Buddha figure. $12'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$.

**Har. 042. Painted wooden panel.** Standing Bodhisattva, prob. Avalokiteśvara, ¾ to L., holding in R. hand lotus and in L., hanging down, a long-necked ovoid flask. Hair long with floral Mukuṭa. Bodice of a discoloured yellow tint, with cartouche ornaments on arms near shoulders. Skirt tight fitting, pink, figured with three-spot pattern. Narrow stole, dark green. Nimbus and vesica bordered red-brown. Top angles of panel cut off; surface badly abraded. Traces of Brāhmī script under painting. $10\frac{5}{8}'' \times 3\frac{3}{8}'' \times \frac{3}{8}''$. Pl. XIV.

**Har. 043. Fr. of painted wooden panel.** An all-over pattern of six-petalled rosettes evenly spaced with half-open (?) flowers in spaces. Colour perished and uncertain. Part on one long side broken away. Hole drilled $3\frac{1}{2}''$ from one end. $12\frac{1}{2}'' \times 2\frac{3}{4} \times \frac{3}{8}''$.

**Har. 044. Painted wooden panel.** Probably a seated Buddha fig. in black robe. Badly defaced; surface of panel rough; split at both ends. $11\frac{1}{4}'' \times 3\frac{7}{16}'' \times \frac{3}{8}''$.

**Har. 045. Fr. of painted wooden panel.** L. p. half of seated Buddha figure, hands in lap. Head, against blue nimbus, turned slightly to L. Single dark red-brown robe with black contour lines; a white line at turnover at neck and another at wrist. Pink body halo.

Work rough. Half of panel missing and lower part broken. Back shows part of thickness split away. $7\frac{7}{8}'' \times 2\frac{1}{4}'' \times \frac{3}{8}''$.

**Har. 046. Painted wooden panel.** *Obv.*: two seated figures, one above the other. Upper sits on green seat, figured with four-petalled pale rosettes, and is dressed in dark maroon robe with red sleeves and borders and wears black boots. Head missing.

Lower seems to be dressed in red tunic with green hem, green stole, and maroon under robe. On head a low coronet. Face missing; R. p. hand raised to shoulder level and turned outward, palm up, probably holding some object; L. p. hand at breast.

Background blue, enclosed in elliptical border, beyond which red ground. All very badly abraded.

*Rev.*: a similar scheme, but only a few faint traces remain. Few written characters in red at top. One lower corner of panel broken off and a hole drilled near; another hole just above centre, filled with paste. $10\frac{3}{4}'' \times 2\frac{1}{4}'' \times \frac{3}{8}''$.

**Har. 047. Wooden tablet,** lath-shaped, containing on each side two lines of Brāhmī writing. Both ends of tablet are cut slightly concave with edge chamfered. A hole at each end, one broken in half. $8\frac{1}{2}'' \times 1'' \times \frac{3}{16}''$.

**Har. 048. Rectangular wooden tablet,** consisting of a long narrow blade with thickened portion at one end roughly cut for a seal case. At opposite end a string-hole. Two ll. of Tibetan script on one side and traces of similar characters on the other. $7\frac{1}{4}'' \times \frac{7}{8}'' \times \frac{3}{4}''$.

**Har. 049. Rectangular wooden tablet,** slightly concave at ends. String-hole near one end. Two ll. cursive Brāhmī script on one side. Shallow groove along centre of reverse. Well preserved. $5\frac{1}{2}'' \times \frac{7}{8}'' \times \frac{1}{4}''$.

**Har. 050. Painted wooden panel.** Gaṇeśa seated

cross-legged on dark crimson cushion decorated with rows of pearls. Head turned slightly to L. and trunk curled to R. Trefoil crown on head; massive gold collar which is shown passing in front of trunk.

In R. p. hand a white cup held crooked at breast. L. p. hand in lap grasping pointed object, perhaps a radish. The only garments seem to consist of a stole and a loin-cloth. A large jewelled armlet near each shoulder, plain bracelets and anklets.

Stole and loin-cloth red. Flesh dark grey. On face are several repetitions of a spot pattern composed of three small dots in brown. Field of body halo dull green, border dark maroon. Outer ground, some light colour powdered with large yellow and red spots.

Panel cut square at top with corners sliced off. Bottom roughly rounded. Obv. part split away, traces of writing on intact surface. $11'' \times 5\frac{3}{4}'' \times \frac{5}{8}''$. Pl. XIV.

**Har. 051, 052, 077. Rectangular wooden tablet,** slightly curved; ends cut concave. A string-hole near one end. On one side three ll. cursive Brāhmī script, and on other one long and one short l. Broken in three pieces. $8\frac{3}{8}'' \times \frac{3}{4}'' \times \frac{1}{8}''$.

**Har. 053. Irregular rectangular tablet,** roughly cut on all edges, with seven ll. cursive Brāhmī script. Very clear. Rev. blank. $5\frac{3}{8}'' \times 1\frac{3}{4}'' \times \frac{3}{8}''$.

**Har. 054. Oblong wooden tablet,** rounded at one end, pointed at other, near which a hole (broken away to point). Three ll. cursive Brāhmī script on one side, centre l. interrupted in middle. Other side, near point, a short l. $7'' \times 1\frac{3}{8}'' \times \frac{3}{16}''$.

**Har. 055. Oblong wooden tablet,** rounded at one end, pointed at other, with string-hole. On one side four ll. cursive Brāhmī script; rev., two ll. On rev. a line scratched marking off rounded end from body of tablet. Well preserved. $6\frac{1}{2}'' \times 2\frac{5}{16}'' \times \frac{3}{16}''$.

**Har. 056. Rectangular wooden tablet,** with traces of writing partly planed off on one side. One long edge hacked with cutting instrument. $9\frac{3}{4}'' \times 2\frac{3}{8}'' \times \frac{1}{2}''$.

**Har. 057. Oblong wooden tablet,** squared at one end, pointed by two concave cuts at other. No hole. Three ll. cursive Brāhmī script on one side. One l. near edge and another near square end on other. $7\frac{3}{8}'' \times 1\frac{3}{4}'' \times \frac{3}{16}''$.

**Har. 058. Oblong wooden tablet,** slightly rounded at one end. Three ll. (incompl.) of cursive Brāhmī script on each side. Well preserved. $5\frac{3}{4}'' \times 1\frac{3}{8}'' \times \frac{3}{16}''$.

**Har. 059. Fr. of rectangular (?) wooden tablet,** showing three ll. cursive Brāhmī script on one side; rev. blank. One end and one side broken away. $5\frac{1}{2}'' \times 2'' \times \frac{3}{16}''$.

**Har. 060. Oblong wooden tablet,** roughly narrowing at both ends, a string-hole at one end. Three ll. cursive Brāhmī script on each side. Fairly preserved. $14\frac{3}{8}'' \times 1\frac{3}{4}'' \times \frac{3}{16}''$.

**Har. 061. Wooden stick,** flattened on one side, retaining natural slight curve and taper. On flattened side, cursive Brāhmī script in four columns, three of three ll. each and one of two ll. Rev., three columns, two of three ll. and one of two. Well preserved. $14\frac{1}{8}'' \times 1\frac{3}{4}''$ to $1'' \times \frac{3}{8}''$.

**Har. 062. Square wooden rod,** with thin tenon at each end, a dowel-pin hole in each showing that rod formed one side of frame or similar object. On one face of rod a l. of cursive Brāhmī script. Well preserved. Length with tenons $10\frac{3}{8}''$. Thickness *c.* $1''$ square.

**Har. 063. Rectangular wooden batten,** broken away at one end and cut slightly thinner at other end as though to fit into a mortice. Faint cursive Brāhmī script on all four surfaces. Wood well preserved. $11\frac{3}{4}'' \times 1\frac{13}{16}'' \times \frac{7}{8}''$.

**Har. 064. Oblong wooden tablet,** flat on one side, other side convex. One end irregular, other square. Blank. $6\frac{3}{4}'' \times 1\frac{5}{16}'' \times \frac{3}{8}''$.

**Har. 065. Rough wooden stick,** with bark in places, split from twig; a narrow surface smoothed and bearing a few cursive Brāhmī chars. $5\frac{3}{8}'' \times \frac{7}{16}'' \times \frac{3}{8}''$.

**Har. 066. Fr. of rectangular wooden tablet,** concave at end near which is hole, broken away at other end. Part of two ll. cursive Brāhmī script on one side, and part of one on rev. Well preserved. $2\frac{1}{2}'' \times \frac{3}{4}'' \times \frac{3}{16}''$.

**Har. 067. Fr. of rectangular tablet,** showing two ll. small cursive Brāhmī script. Broken away at one end. $2\frac{3}{8}'' \times 1'' \times \frac{3}{16}''$.

**Har. 068. Fr. of wooden tablet,** irregular shape, pointed at one end and square at other. One l. of cursive Brāhmī script on each side. $6\frac{1}{4}'' \times \frac{9}{16}'' \times \frac{1}{8}''$.

**Har. 069. Short stick,** rounded at each end and split lengthwise from a round twig. On one edge notches, as for a tally. Worm-eaten. $7'' \times \frac{1}{2}'' \times \frac{1}{4}''$.

**Har. 070. Wooden stick,** retaining bark excepting where cut. Longitudinally split from round twig and cut flat on other face. On cut side one l. cursive Brāhmī script. $5\frac{3}{8}'' \times \frac{5}{8}'' \times \frac{1}{4}''$.

**Har. 071. Fr. of stick,** evenly notched on one side. Broken at both ends. Perished. $2\frac{7}{8}'' \times \frac{1}{2}'' \times \frac{3}{8}''$.

**Har. 072, 073. Frs. of wooden writing tablets,** same character as 058, to which they may possibly belong. Gr. fr. (*072*). $1\frac{5}{8}'' \times 1\frac{1}{4}''$.

**Har. 074. Fr. of wooden writing tablet,** with traces of writing on one side and a smear of red paint on each side. Broken at three edges. $2\frac{1}{8}'' \times \frac{7}{8}'' \times \frac{1}{8}''$.

**Har. 075. Fr. of soft felt,** sewn into a sort of irregular oblong pouch. $6\frac{1}{2}'' \times 4\frac{3}{8}''$.

**Har. 076. Rectangular wooden tablet,** in many frs., joined. Square at one end, rounded at other. Part of square end missing. Hole at rounded end, broken. Three ll. cursive Brāhmī script on one side, four ll. on other. $6'' \times 1\frac{1}{4}'' \times \frac{5}{16}''$.

# APPENDIX N

## NOTES ON STONE IMPLEMENTS FROM THE TĀRĪM BASIN AND SĪSTĀN

BY

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[NOTE.—Descriptive notes kindly furnished by Mr. Reginald Smith on individual stone implements have been embodied in the Lists of Antiques in Chap. VI, sec. iv; Chap. VII, secs. ii, vi, vii; Chap. XXX, sec. iii.—A. STEIN.]

CONFIRMATION of previous descriptions[1] is the main result of analysing the stone implements of this expedition. The absence of any important new type indicates that the culture was homogeneous and comparatively short lived; but though petrologists may derive instruction from the materials employed, internal evidence is otherwise indefinite, and the chronology depends almost entirely on the circumstances in which the specimens were found.

It seems beyond question that the sites of these discoveries lie on an important east-and-west trade route across Asia; and the connexion with China at one end of the line is evident. How far west the route extended is more open to conjecture, but the stone industry has exact parallels in Palestine and Egypt as well as in Central India, and it is possible that a late neolithic or aeneolithic culture was common to a great zone between the Atlantic and Pacific, being spread by nomads from some central point (possibly Egypt) where raw material was abundant. From the Fayyum and the Libyan Desert there are in the British Museum (Sturge Collection) many spindle-shaped points like Pl. XXII, Nos. 13, 14, 23, and long narrow blades like Pl. XXII, Nos. 17–21, also cores from which they were struck. The 'points' are also known from Palestine.[2]

Arrow-heads of leaf pattern are, like nearly every other type, found in Egypt.[3] Cores for narrow blades from 1" to 3" in length are known from India, and various sizes are published from Yokha in Chaldaea;[4] small conical examples for pygmy blades are also found in India.

Though it includes many elaborate arrow-head types not represented in the Central-Asian series, the flint finds of Mauretania, on the western edge of the Sahara, may be mentioned in this connexion, as besides the slender pointed oval arrow-heads, straight-edged celts also occur,[5] a late feature bringing to a close the evolution of the cutting-edge from an oval curve; and J. de Morgan pointed out that there was no pure neolithic culture in Chaldaea, in Elam, or the Iranian plateau,[6] copper always accompanying anything not obviously palaeolithic. A *terminus a quo* is thus obtained for the present series which was obviously left behind by travellers going from end to end of Asia, and carrying a culture that should be recognized and dated at the western limit, as China was apparently not the focus of civilization at that date. The *terminus ad quem* or later limit of this stone industry is to a large extent supplied by Sir Aurel Stein's other discoveries on the ancient trade-routes; and if, as is apparently the case, the spindle-shaped arrow-heads are contemporary with the coins and other datable objects found in the same conditions, a chronological factor emerges which may apply to a wide belt of country across two continents.

[1] Cf. R. A. Smith, 'The Stone Age in Chinese Turkestan', *Man*, ii (1911), pp. 81 sqq.

[2] J. de Morgan, *L'Humanité préhistorique*, p. 99, Fig. 38 Sur Baher, near Jerusalem).

[3] J. de Morgan, *op. cit.* p. 94, Fig. 33 (Negadah, Upper Egypt).

[4] J. de Morgan, *op. cit.*, p. 97, Fig. 36.

[5] *L'Anthropologie*, xxx, pp. 339, 351 (Verneau, 'Nouveaux documents sur l'ethnographie ancienne de la Mauritanie').

[6] J. de Morgan, *L'Humanité préhistorique*, p. 109.

# APPENDIX O

## SPECIMENS OF ROCK AND SAND EXAMINED AND DESCRIBED

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WITH A NOTE ON SPECIMENS OF SHELLS

BY

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THE Collection entrusted to us for examination by Sir Aurel Stein consists of samples of sand and fragments of rock, together with a few molluscan shells and minerals.

A list of the localities from which this material was obtained is given at the end of the Appendix (p. 1079): a number corresponding to each of the specimens described is placed before its appropriate locality, the rocks being distinguished by the numbers from 1 to 70 and the sands from 100 to 146. Shells are indicated by the letter S and minerals by M.

A classification of the rocks and minerals with their distinctive numbers is as follows:

### ROCKS.

*Igneous.*

Granite, 11, 14, 18, 23. Pegmatite, 29 a, 42 a.
Aplite, 9. 1, 30.
Adamellite, 26, 50, 51, 60. Monzonite, 37.
Granophyre, 11, 22, 39, 41, 59.
Vogesite, 8.
Rhyolite, 16, 45, 47, 65–67. Jasperized felsite, 42.
Andesite, 1, 13. Dolerite, 36, 55.

*Metamorphic.*

Mica Schists, 9, 10, 17, 25, 34, 35.
Hornblende Schists, 15, 20, 68. Amphibolite, 7, 33.
Epidosite, 28. Schistose volcanic agglomerate, 48.

*Sedimentary.*

Quartz Grit, 6, 24, 30, 32, 57, 62–64. Adinole (?), 56.
Calcareous Grit, 61.
Limestone, 2–4, 27, 43, 49, 52, 53, 58.
Dolomite, 29. Coal, 21.

### MINERALS.

Quartz, 9 a, 10 a, 11 a, 14 a, 24 a, 45 a, 63. Rock-salt, 2 a, 12 a.
Galena, 60 a. Malachite, 44. Orpiment, 43. Gypsum, 6, 7 a, 58, 59.

The necessities of transport rendered it impossible to collect more than very small fragments of rock, and these were obtained from projecting faces fully exposed to the weather, but fortunately, owing to the dryness of the climate, they are almost all still remarkably fresh and suitable for microscopic analysis. This is a very encouraging fact, since it shows that an explorer in a dry climate may bring home a valuable representative series of rocks without unduly burdening his impedimenta.

The results of our investigation are almost purely petrological and throw but little light on the structure of the country, with the possible exception of one instance afforded by a specimen, No. 6, from Mazār-tāgh on the Khotan river. This is a grit, but as it contains a good deal of carbonate of lime it may stand in some connexion with the limestone region of the Lāl-tāgh–Chok-tāgh area.

A point of particular interest to the petrologist is the presence in the limestone No. 27 of crystals of felspar which we were at first disposed to regard as having been formed in place. Subsequent examination showed that they are foreign bodies introduced into the area of deposition during the formation of the limestone. This observation may prove to have an important bearing on the occurrence of albite in some metamorphic limestones.

## I. THE ROCKS AND MINERALS

### MARAL-BASHI REGION

1. **Marāl-bāshi** (01 and 02). *Augite Andesite.*
From Chādir-tāsh hillock ten miles ENE. of Marāl-bāshi (01 and 02). These specimens both come from the same rock, which is probably a dike as it is said to dip ENE. at 73° and to strike NW. to SE.

A fine-grained holocrystalline rock of a grey colour which is due, as seen under a lens, to an intimate mixture of lighter and darker components. Sp. gr. 2·83.

The ground mass consists of (1) Labradorite in long rectangular sections, orientated in all directions, and rendered turbid by alteration. (2) Augite in small colourless crystals, scattered irregularly, but sometimes clustered in little rosettes. They are bounded by the forms (110), (100), and (010) and extinguish at 39°. (3) Magnetite in abundant grains. (4) Quartz also occurs in small quantity but always as an interstitial constituent, never as a xenocryst.

Occasional phenocrysts of labradorite occur; these are sometimes broken across and, as shown by the displacement of the albitic twinning, faulted as well. The augite also shows signs of having been subjected to pressure, its cleavage planes being sometimes curved and its extinction undulose. It is never ophitic.

Chlorite is present as a product of alteration (pleochroism X, colourless; Y and Z, bluish-green). It occurs in interstitial patches and as a fibrous growth round oval areas (? vesicles) now occupied by felspar. It never presents forms suggestive of the original presence of olivine.

2. **Chok-tāgh**, S. foot of. *Limestone.*
A fragment of dark grey limestone polished by the wind.

Under the microscope this is seen to consist of finely granular areas, usually oval or rounded, immeshed in a network of calcite having a coarse mosaic structure. Some sections of minute crystals of quartz are also visible.

Whether the granular areas are original or secondary formations is extremely doubtful, but some structures are present which are obviously the remains of organisms.

On solution a residue is left which consists almost entirely of minute quartz crystals having the characteristic form of a hexagonal prism bounded by a 'pyramid' at each end, but the sides of the prism are plane with no indication of horizontal striae. The smallest measured was found to be ·002 mm. in diameter by ·006 mm. in length, some of the larger ·055 mm. by ·143 mm. The length is usually about three times the breadth, but there is no constant ratio; an unusually large example gave ·11 mm. by ·176 mm.

It is noteworthy that these crystals not infrequently include minute rhombohedra of calcite, and from this it may be inferred that they are not xenocrysts but formations in place. Similar crystals have been observed in the Carboniferous limestone of the British Isles. The silica of which they are composed was probably supplied by organisms, possibly Radiolaria.

2 a. **Chok-tāgh**, from ridge at second fixing S. of C. XXIV (02–04). *Rock-salt.*
Fragments of a bed of rock-salt. The bed, which was 25 mm. in thickness, presents a kind of prismatic structure due to the continuous growth of its constituent crystals in a vertical direction.

3. **Lāl-tāgh**, Western Promontory, C. XVIII (024). *Limestone.*
A reddish-brown granular limestone, composed of white granular ovoid bodies, set in a matrix of mosaic calcite. They are rarely in contact with each other, being sometimes separated by a distance equal to half their diameter. They range in size from ·16 mm. to ·55 mm., or in one exceptional case to 1·0 mm. in diameter. Some are bounded by a definite wall or dusty film of ferric oxide, and sometimes the crystals of the surrounding calcite are definitely orientated with their vertical axes radiating.

(025) from the same locality is the same rock.

4. **Bēl-tāgh** (01 and 02). From stratified rock at pass, Bēl-tāgh (21. x. 1913). *Limestone.*

A finely granular limestone composed of minute crystals of calcite with patches of coarse mosaic of calcite scattered through it, which are often circular or oval in form and sharply defined from the matrix. They appear to be replacements of some calcareous organism. In addition, fragments of molluscan shells are seen in section.

The residue left after solution in acid consists of cryptocrystalline growths of silica resembling flint and sometimes taking the form of sponge spicules.

Foreign minerals introduced from without are rare; occasional minute flakes of muscovite, a little hornblende, and rutile have been observed. Small grains of ferric hydrate are, however, numerous.

This and specimen (01) are from the same stratified rock at the pass, Bēl-tāgh.

**5. Taklamakān Desert**, S. of Marāl-bāshi. C. xxiv. *Quartz Grit.*

A fine-grained red quartz grit composed almost entirely of grains of quartz, most of them angular; comparatively few rounded. They are all well defined by a thin continuous coating of ferric oxide. The quartz sometimes contains minute crystals of an undetermined mineral and vapour cavities. A few grains are composite, minutely mosaic, and recall the basis of some granophyres.

Grains of felspar are fairly numerous; some are microcline, quite fresh and unaltered, some oligoclase, and many are too much sericitized for determination.

In addition to ferric oxide there are patches of a black opaque mineral.

This rock is also met with as broken flakes included in the fragments of rock-salt described under No. 2 a.

**6. Mazār-tāgh of Khotan** (052). *Red Grit.*

An extremely fine-grained grit consisting chiefly of minute angular particles of quartz cemented by ferric hydrate and calcium carbonate.

Associated with this are several specimens (053–058) of gypsum.

## LOP DESERT

**7. Camp C. civ** (01). *Amphibolite.*

A compact dark green rock composed almost entirely of hornblende with an angle of extinction of 22° and pleochroism: X, faint yellow to almost colourless; Y, dark sage green; Z, dark green. Biotite is absent, but a little muscovite occurs as an interstitial constituent.

Anorthite and labradorite are scattered through the rock in small allotriomorphic grains. Zoisite is present often in well-formed crystals, and there is a small quantity of magnetite with sometimes associated sphene.

**7a.** An incrustation covering the ground, two to four miles SE. of C. civ (01). A thin porous layer of gypsum coated on one surface with an irregular compact layer of the same mineral.

**8. Camp C. civ** (04), from 'Sai' about thirteen miles SE. of C. civ. *Vogesite.*

The specimen is an irregular rod of a grey rock speckled with minute black grains (hornblende) and comparatively large phenocrysts of white felspar, quartz, and biotite or hornblende. It has been polished by the wind and worn into little pits corresponding with the presence of felspar phenocrysts.

The ground mass consists chiefly of plank-like sections of albite and orthoclase with numerous elongated prisms of hornblende and interstitial quartz. Magnetite is present throughout. The albite is much altered by weathering, with the development of minute grains which give it a milky white appearance by reflected light. The hornblende presents the forms (110), (100), and (010); it extinguishes at 19°, and its pleochroism is, X, faint brownish yellow, almost colourless; Y and Z, yellowish brown. It is irregularly dispersed, while the felspar frequently presents a radiate or sheaf-like arrangement and sometimes occurs as elongated forms included in quartz which recall some of the radioles met with in granophyre. The phenocrysts are hornblende, biotite, oligoclase, and quartz, the latter two of great size in comparison with the constituents of the matrix.

The biotite is brown when fresh and strongly pleochroic: X, light yellow; Y and Z, warm brown. It includes large crystals of apatite and some magnetite, is often much corroded by the matrix, and in many cases has suffered by alteration, and is then green in colour, with pleochroism: X, very faint green; Y and Z, deep green. The change is accompanied by the development of epidote.

The oligoclase occurs in single crystals or crystal complexes, is often zonal, much corroded by the matrix, and sometimes invaded by it.

The quartz occurs in single individuals or as a coarse mosaic: in one instance a reaction rim is present, formed by an intergrowth of quartz and chlorite. The chlorite appears to have resulted from the transformation of the adjacent hornblende.

**9.** From the same locality as No. 8. *Mica schist.*

A long thin parallel-sided rod of fine-grained mica schist, composed of quartz, abundant biotite with pleochroism: X, colourless; Y and Z, brown, some muscovite and iron oxide.

**9. a.** (05, 06). Two worn crystals of pure quartz.

**10.** From stony 'Sai', sixteen miles SSE. of C. civ. (07 and 08) mica schist; (09 and 010) quartz.

**11. C. civ** (011). *Granophyre.*

Ground mass micrographic and pilotaxitic, with phenocrysts of orthoclase, oligoclase-albite, quartz, and biotite. The felspars and quartz lie severally in the middle of an area of micrographic structure, the growth of which they seem to have determined. The quartz has been corroded by the matrix, and the felspars are crowded with minute granules.

The biotite is present in fragmentary remains represented

by the green variety which marks its first stage of alteration; but these are almost constantly associated with an abundance of colourless epidote and muscovite, the products of its complete transformation.

Zircons are rare, but when present in the biotite are surrounded by a faint pleochroic halo, the radius of which does not exceed ·017 mm.

From Sai, six miles SSE. of C. civ; strike ESE.-WNW., dip 75° NE. (012 and 015) quartz; (013) quartz schist, no doubt part of a mica schist series; (014) granite.

**12. Near dry river-bed of Kuruk-daryā.** *Aplite?*

A small worn angular fragment of a red quartz felspar rock.

**12 a. Kum-Kuduk,** 8 miles NW. of. *Rock-salt.*

Irregular nodules, some consisting of rock-salt encrusted with sand, some of sand cemented with rock-salt.

## TERMINAL COURSE OF ETSIN-GOL RIVER

**13. Mao-mei (01).** *Hornblende Andesite.*

A closely jointed dark grey, almost black, rock with small phenocrysts. Sp. gr. 2·73.

The ground mass is difficult to analyse: it consists of irregular areas of felspar crowded with minute granules and needles, some if not all of which are hornblende.

The phenocrysts are idiomorphic crystals of hornblende, plagioclase, and magnetite. The plagioclase is glassy clear, often either zonal, or with undulose extinction. Its optical properties and specific gravity show that it ranges from andesine to labradorite.

The hornblende is defined by the forms (110), (010), and (100); it extinguishes at 19° and its pleochroism is, X, from colourless to faint yellow; Y, brown; Z, also brown, but of a darker shade.

Biotite is represented by a few rare phenocrysts which present reaction rims of hornblende and magnetite. In one case biotite forms the core of a crystal of plagioclase and some of its cleavage lamella penetrate the felspar running parallel to the planes of albitic twinning.

Apatite is fairly abundant, especially in association with the biotite; some sphene is present and a little, almost colourless but slightly pleochroic, epidote.

**14. Mao-mei (02).** *Granite.*

A rather coarse reddish, consisting of a mosaic of quartz, hypidiomorphic crystals of felspar, biotite, and muscovite.

The quartz contains abundant liquid cavities, isolated fragments of biotite, muscovite often in small crystals which may be grouped in clusters, and numerous granules which appear to be the remains of some incompletely digested mineral, probably felspar. The liquid cavities form long linear series which run in one prevalent direction and sometimes cross from one element of the quartz mosaic into another.

The felspar consists of orthoclase, more or less perthitic, microcline, and a plagioclase which appears to be an albitic oligoclase.

The biotite is brown and strongly pleochroic; X, straw yellow; Y and Z, deep brown to black. It contains crystals of zircon and apatite; the former surrounded by pleochroic haloes.

The muscovite is both primary and secondary. When primary it sometimes corrodes the biotite and completes its growths, the cleavage planes of the two maintaining a strict parallelism.

**14 a. (03).** A worn fragment. *Quartz.*

**15. Mao-mei (04).** *Quartz Hornblende Schist.*

This well-foliated green schist consists of quartz mosaic, plagioclase felspar, and parallel foliae of hornblende. Associated with the hornblende here and there is a brown biotite, the cleavage planes of which also lie approximately in the plane of foliation. A good deal of apatite, magnetite, and some isolated crystals of epidote are also present.

The hornblende is grass green in colour and strongly pleochroic; X, faint straw yellow; Y, dark green; Z greenish blue. Its angle of extinction is 24°.

The pleochroism of the biotite is, X, faint yellow, like the hornblende; Y and Z, deep brown.

The quartz mosaic includes abundant andesine in individuals which sometimes acquire a comparatively large size. In some cases the felspar is shot through with threads of quartz. The apatite also occurs in large crystals or rounded grains.

The eyes formed by an expansion of the clear quartz mosaic resemble those described later in the hornblende schist (72) of Mīrān, but contain in some cases as an additional mineral a faintly pleochroic almost colourless epidote. It often lies in the middle of an eye and is bordered by a fringe of small fragments which have been detached from it. In some cases a whole crystal has been resolved into a heap of small grains.

## PEI-SHAN RANGES

**16. Chin-ĕrh-ch'üan, Pei-shan (013).** NW. of Ming-shui, from ridge one mile SE. of Chin-ĕrh-ch'üan. *Brecciated Rhyolite.*

A compact, jointed, chocolate-coloured rock with small lighter coloured inclusions. The joint surfaces are covered with a black lustrous patina.

It consists of a finely granular, colourless, glassy basis, through which are scattered angular fragments and splinters of quartz, broken crystals of orthoclase, and oligoclase. Immersed in this are small fragments of rhyolite with marked flow structure. These, which are themselves fractured, and differ in details from one another, form the greater part of

the rock. They consist of a glassy base in which, as seen between crossed nicols, clearer alternate with darker bands. The clearer bands are sometimes formed of a quartz mosaic, and when they are very thin this mosaic may be reduced to a line of single individuals: sometimes, however, the bands consist of spherulitic growths having a positive sign.

The rock is not a consolidated volcanic ash, as a superficial examination might suggest, but a rhyolite which was broken up during flow, the resulting fragments being caught up and carried along by that part of the stream which still remained fluid.

**17. Ming-shui, Pei-shan** (014). From rocky knoll two miles NW. of Ming-shui. *Contorted Mica Schist.*

A dark greenish-grey rock with silvery mica on the foliation surface. Sp. gr. 2·78.

Muscovite mica is one of the most conspicuous constituents of the rock, which repeats on a small scale the structure of a much-folded mountain chain with folds, overfolds, and overthrusts in great variety: quartz mosaics follow the course of the mica; their constituent grains are repeatedly broken across in the direction of the once active pressure and show strong undulatory extinction. Grains of felspar sericitized too completely for exact determination contribute to the structure, often occurring as 'eyes'. They extinguish parallel to their cleavage, which is often well marked and sometimes emphasized by lines of muscovite which has developed along them and gives them a fallacious appearance of albite twinning.

Garnets are fairly numerous; they are colourless, sometimes quite fresh and unbroken, but more usually fractured along lines in the direction of pressure. Along these lines chloritization has occurred, sometimes transforming nearly the whole of the original substance. In some cases the garnets are drawn out into lenticles; in others bent into conformity with the cusp of a sharp fold. Streaks of crushed magnetite are interspersed with the muscovite and conform to its folds.

Tourmaline is represented by a few well-formed, bluish-grey crystals, with pleochroism: O, bluish grey; E, almost colourless or faint yellow.

Some stray fragments of biotite may be seen, with pleochroism, X, faint yellow; Y and Z, deep greyish green.

**18. Ming-shui, Pei-shan** (015). NW. of Ming-shui. Rocky ledge near Wadi, ten miles NW. of Ta-shi-kou.

*Salmon-red Granite.*

This consists of large crystals of orthoclase, microcline, and oligoclase, mostly hypidiomorphic and remarkably fresh; abundant quartz mosaic; a very little biotite,—pleochroism, X, brown; Y and Z, black; a larger quantity of muscovite which sometimes includes residual biotite, and finally and most interesting, garnets, in much-fractured and corroded crystals of a faint red colour.

Iron ores and apatite do not appear to be present.

**19. Ming-shui, Pei-shan** (016). From same locality as (015). *White Granite.*

Orthoclase, with occasional perthitic structure, and oligoclase in large as well as small idiomorphic or hypidiomorphic crystals form the greater part of the rock.

Quartz, with numerous gas pores, fills up the wide interspaces between the felspars, sometimes in single individuals, more often as a mosaic.

Biotite is present but not abundant; it sometimes contains zircons with their accompanying haloes, and is generally rich in apatite which forms comparatively large crystals. Most of the biotite has been altered into chlorite and epidote.

Magnetite is well represented, especially in association with the altered biotite.

The felspars, especially the orthoclase, are for the greater part much sericitized, but some are remarkably fresh.

**20. Pei-shan** (018). Taken from a cliff twenty-three miles NW. of Chin-êrh-ch'üan. *Zoisite Hornblende Schist.*

A fragment of a light green rock, with ill-developed schistosity and traversed by quartz veins.

Under the microscope it presents a marked parallel structure, strands of lighter and darker appearance running in one direction, with which also the long axes of the constituent minerals correspond.

The lighter streaks consist of an almost colourless amphibole (actinolite) which extinguishes at 15° and is only faintly pleochroic—X, colourless; Y and Z, faint green—together with quartz, albite, and sphene. The darker streaks also consist of these minerals, but to them is added another constituent which is granular, and of high double refraction which diminishes its transparency. This was found very difficult to identify, and the rock slice was therefore submitted to Dr. H. H. Thomas, Petrologist to the Geological Survey, who was able to show that it possesses all the distinctive characters of zoisite.

Some thin veins traverse the rock, cutting across the parallel structure; some of these consist of calcite, some of calcite and quartz, and others of an isotropic substance, conjecturally regarded by Dr. Thomas as opal.

Dr. Thomas adds that the rock recalls some of the 'calcflintas' which occur around the granites of Devon and Cornwall.

**21. Mou-wu, Pei-shan** (01), beyond Mao-mei.

*Vesicular Coal.*

The collection contains two small specimens of this remarkable substance. One is a laminated fragment, composed chiefly of dull lustreless layers which soil the fingers. With these are intercalated bright lustrous layers, and the whole resembles an impure coal.

Under the microscope this coal, which is opaque and apparently structureless, is seen to be highly vesicular. The vesicles in some of the laminae are comparatively small and elongated for the most part in the plane of the laminae; in others they are much larger and very irregular, extending upwards across the laminae as well as with them. Further, the substance of the layers is found to include, scattered sparingly through it, a number of angular fragments of various

minerals, such as occur in desert sands; orthoclase, plagioclase, and muscovite mica being the most conspicuous.

These peculiarities might well lead us to doubt whether the carbonaceous substance is truly coal, for it recalls the structure of a vesicular lava flow and suggests that at one time the material existed in the fluid state and might be an inspissated product of a mineral oil.

Its specific gravity, however, determined by a diffusion column from the purer parts, proved to be that of a household coal; it gave off water and tarry matter when heated in a closed tube, burnt with a white flame, and yielded very little dissolved material when heated with chloroform, ether, and other solvents. Whatever its origin, it does not now differ to any marked degree from ordinary coal.

The second specimen is not laminated and is more highly vesicular than the first, its substance, as seen in section, being reduced to a network, enclosing comparatively large open spaces which are not elongated in any direction. In the network itself many minute vesicles are present, but mineral fragments are rare.

The origin of this coal is obscure: it may have been formed by the growth of vegetable matter in quiet water, into which mineral grains were at the same time carried by the winds. Marsh gas evolved by the decaying vegetable matter would account for the vesicles, and that in one of the specimens these are flattened out in the planes of lamination might be due to its having been formed nearer the bottom than the top of the deposit and thus under the pressure of overlying layers.

**22. Lo-t'o-ch'üan, Pei-shan** (01). From a rocky kopje, one mile NW. of Lo-t'o-ch'üan. *Granophyre.*

A much-jointed reddish flinty rock with a dark brown patina. It consists of quartz and orthoclase in micrographic growths, including negative spherulites. Ferro-magnesian elements are absent, but a fine dust of iron oxide is scattered through the rock and confers upon it its red colour. Iron oxide also occurs in long lines as though deposited along cracks, and in some cases it helps to define the outlines of the constituents of a radiate micrographic growth.

**23. Lo-t'o-ch'üan** (02). From a rocky kopje, eighteen miles NW. of Lo-t'o-ch'üan. *Biotite Granite.*

White granite speckled with black mica.

It consists of large hypidiomorphic crystals of perthitic orthoclase which sometimes include smaller crystals of oligoclase or corroded fragments of muscovite. A little microcline is also present. Quartz is present, sometimes in mosaics; it invades the orthoclase and shows a tendency to micrographic growths. Biotite occurs as a fragmentary residue, sometimes passing into chlorite with associated epidote; it is strongly pleochroic—X, pale yellowish brown; Y and Z, deep brown to black—and includes crystals of apatite as well as zircon, with pleochroic haloes. There is a little muscovite in corroded crystals.

**24. Lo-t'o-ch'üan** (03). From a detritus hillock near Lo-t'o-ch'üan. *Fine-grained Grit.*

A dark grey grit; sp. gr. 2·7.

This rock is remarkably fine grained and contains a great deal of secondary calcite, which rendered its analysis under the microscope remarkably difficult. This was removed with hydrochloric acid. Quartz, in splinters and angular grains, is abundantly present; there is some felspar with albite twinning which extinguishes at 16°; and a good deal of muscovite in small flakes and ragged contorted laminae. Some opaque white granules, probably leucoxene, are scattered here and there.

**24 a.** (04 and 05). *Quartz.*

**25. Lo-t'o-ch'üan** (01). Rocky kopje, six miles NW. of Lo-t'o-ch'üan. *Quartz Mica Schist.*

A highly schistose fragment of a rock composed mainly of quartz, plagioclase felspar, and biotite.

The quartz is very clear, without vapour cavities, or with very few, shows marked undulose extinction, and forms with the plagioclase a mosaic of various degrees of fineness. The plagioclase is twinned on the albite plan and may thus be distinguished from the quartz, which it otherwise closely resembles. Its refractive index is so nearly that of quartz that one cannot determine the difference.

The biotite is fresh and extremely uniform in all its characters, clear, slightly brownish yellow in colour, with marked pleochroism: X, colourless; Y and Z, brownish yellow. It is remarkable for the abundant presence of pleochroic haloes, some surrounding zircon, others a mineral not identified. One of these haloes, well defined and circular, surrounding the pyramidal end of a crystal of zircon gave ·0355 mm. as the value of the radius of the halo, after deducting for the radius of the zircon.

Some small grains of magnetite are scattered through the rock.

**26. Lo-t'o-ch'üan** (02). Rocky kopje, eighteen miles NW. of Lo-t'o-ch'üan. *Adamellite.*

The chief constituents are large hypidiomorphic crystals of orthoclase and plagioclase, both for the greater part extremely sericitized. The plagioclase is closely twinned on the albitic plan with a maximum extinction of 15°, but as its index of refraction cannot be determined it is impossible to say certainly whether it is albite or oligoclase. Quartz occurs in course mosaics and is interstitial. Hornblende and biotite are fairly abundant. The hornblende is green and pleochroic, with X, faint straw yellow; Y, dark green, and Z also green. The maximum extinction angle is 14°.

The biotite rarely retains a trace of its original brown colour and is green by alteration, with pleochroism: X, straw yellow or colourless; Y and Z, dark green. It contains a good deal of apatite, often in fairly large crystals, and some zircons which are surrounded by a pleochroic halo.

There is a good deal of secondary epidote and chlorite. Iron ores were not observed.

**27. Lo-t'o-ch'üan** (03). Detritus hillock near. *Limestone.*

A fragment of fine-grained grey limestone, consisting of

an irregular mosaic of calcite, the individual crystals of which measure about ·04 to ·06 mm. in diameter, and minute granules or rhombohedra also of calcite, but measuring from ·007 to ·012 mm. in diameter.

Some small opaque cubes, rusty red by reflected light, are scattered here and there; some are surrounded by a brownish halo. They appear to be oxidized pyrites.

On solution in hydrochloric acid an odour of petroleum is given off and a black dust of carbonaceous matter is left as a residue. On examining this under the microscope a small quantity of mineral matter is found to accompany it. The greater part consists of minute granules, many no more than ·0037 mm. in diameter. They are colourless and transparent: some are found united in various ways, two combine to form a rod, or three or more are joined together and from these complexes crystals are built up, some with well-defined and continuous outlines, but hollow in the middle; others, finally, are fully completed forms. The specific gravity of this material was found to lie between 2·55 and 2·57, the refractive index a little above 1·5. One or two larger crystals measuring ·04 by ·08 mm. were observed which closely resembled a common form of sanidine, and there can be no doubt that the whole of this material is orthoclase. The first impression produced when studying it is that it presents us with the various stages of growth from granules comparable with the globulites of Vogelsang up to the completed crystal, but on reflection another explanation appears to be possible; the incomplete forms may not be the germs of crystals but the products of their dissolution, and this view is sustained by the presence of other minerals undoubtedly foreign to the rock, such as minute scales of muscovite and grains of quartz. This conclusion, if correct, has an obvious bearing on the supposed presence of primary albite in metamorphosed limestone.

**28. Ta-shi-kou, Pei-shan.** *Epidote Rock.*

A much-jointed fragment of an apple-green rock, containing obvious quartz.

The greater part of the rock is an aggregate of granular crystals of epidote; it is traversed by numerous cracks running in various directions and now healed-up vein deposits. The rock has evidently been brecciated in place, but in addition movement has taken place along some of the fractures. Phacoids of another rock, retaining their original composition, are distributed along these fractures.

The phacoids consist of coarse quartz mosaics, showing undulose extinction, and large crystals of albite which are traversed by fractures and faults and otherwise deformed, as is shown by the curvature of the twinning planes and the production of secondary twinning which crosses the original.

**29. Yeh-ma-ching, Pei-shan (01–06).** *Dolomite.*

Fragments of pink compact dolomite traversed by veins of calcite and quartz and worn by the wind so that the quartz veins stand out in relief.

The rock is a very fine-grained aggregate of minute crystals of colourless dolomite and granules of quartz, crossed by fine veins of quartz and calcite.

The granules of quartz when set free by solution are found to be coated with red oxide of iron, which dissolves with difficulty in nitro-hydrochloric acid.

**30. Yeh-ma-ching, Pei-shan (07).** Four miles S. of Yeh-ma-ching. *Grey Grit.*

A light grey laminated grit composed chiefly of rounded and angular grains of quartz and sericitized felspar, with some muscovite and chlorite. Some of the quartz grains are composite and might have been derived from a granophyre.

Calcite is present, chiefly as a secondary constituent.

**31. Yeh-ma-ching, Pei-shan (08).** *Red Grit.*

A fine-grained purple grit very similar to No. 30. There is a noticeable quantity of fresh felspar, some of which is orthoclase, but the greater part albite or oligoclase. Iron ore is abundant and pyrites occur in small quantity. There is also a good deal of secondary calcite.

**32. Pei-shan.** Ridge flanking valley two miles NW. of C. 209; dip 82° SE., strike NE.–SW.

Fine-grained grit consisting chiefly of quartz; there is a little felspar, some of which is andesine, also grains of calcite and needles of mica which are scattered throughout. The rock is traversed by thin veins of calcite, haematite, and quartz.

**33. Pei-shan, C. 210 (04).** *Amphibolite.*

A compact non-foliated dark green rock.

This consists of a fine mosaic of quartz, through which are scattered in all directions long blades of green hornblende and flakes of brown biotite.

The hornblende extinguishes at 20° and is strongly pleochroic: X, pale straw colour; Y, deep green; Z, greyish blue. It is riddled with quartz, to which are also due its ragged margins.

The biotite, which is sometimes, but not always, intimately associated with the hornblende, is also strongly pleochroic: X, pale yellow; Y and Z, deep brown. Some plagioclase felspar (andesine) contributes to the quartz mosaic.

Magnetite is fairly abundant; apatite and zircons are also present, the latter surrounded by a pleochroic halo in the biotite which contains them.

Some thin veins of calcite traverse the rock.

**34. Pei-shan, C. 212 (06).** *Quartz Mica Schist.*

A pebble of a compact greenish rock.

The greater part of the rock is formed by a mosaic of quartz with its components all elongated in one direction. Running parallel with them are flakes of muscovite and subordinate biotite, either as single crystals or in long trains.

The muscovite is closely connected with the biotite and in some cases can be traced into apparent continuity with it: thus a long transverse section of a muscovite cleavage lamella may be completed by biotite, and when the biotite is so orientated as to appear colourless no distinction can be discerned between the two parts of the section.

The biotite is strongly pleochroic: X, colourless to faint

ochreous yellow; Y and Z, deep sage green to black; most commonly black. It includes some rounded crystals of zircons. Pleochroic haloes were looked for, but none were found.

A few rare crystals of other minerals are present, a little apatite and zoisite. One elongated crystal of zoisite is particularly interesting, since it has been broken across in several places in the direction of pressure, i.e. at right angles to the general parallelism, and one of the fractures has been enlarged so as to produce a considerable interval which has been filled by a growth of muscovite.

**35. Pei-shan, C. 212** (06). *Quartz Schist.*

This is a small fragment of a compact rock and in the hand specimen shows no signs of schistosity; under the microscope, however, it is seen to be definitely foliated. It consists chiefly of a quartz mosaic, the elements of which show undulose extinction and are elongated in one direction, as also are the other constituents of the rock. These consist of muscovite and biotite, which are closely associated; indeed the biotite appears to pass into muscovite. The biotite is strongly pleochroic: X, faint brown; Y and Z, completely absorptive, i.e. black, even in thin films. Felspars are absent, but a rounded and broken grain of epidote is sometimes to be seen.

**36. Nan-ch'üan, Pei-shan** (04). Nineteen miles NW. of Nan-ch'üan (9. ix. 1914). *Dolerite.*

A fragment of a dark grey rock; sp. gr. 2·95.

A thin slice presents plank-like and occasionally tabular sections of Labrador felspar, often ophitic with augite. In some cases the two minerals form roughly radiate intergrowths, a rude attempt at a spherulite on a grand scale.

The labradorite is very much altered (sericitized?), and loaded with the products of alteration, especially in the middle, the margins alone remaining clear. There is a singular rarity of albitic twinning. It often shows undulose extinction. The augite is colourless, where fresh, but gives rise by alteration to green chlorite.

Ilmenite occurs in abundance, sometimes as skeleton crystals, but is not bordered by leucoxene.

## EASTERN T'IEN-SHAN

**37. Ümür-tāgh.** Cliffs in gorge sixteen miles NW. of C. 218 (01). *Quartz Monzonite.*

Hypidimorphic granular rock composed of orthoclase, microperthite, albite and quartz, pyroxene, amphibole, biotite, apatite, titaniferous magnetite, sphene, and rare zircons.

The apatite and no doubt the zircons were the first to crystallize out, then followed the titaniferous magnetite, which includes apatite and is corroded by quartz. This mineral is bordered by colourless transparent sphene. The pyroxene—a colourless diopside with diallage structure—next made its appearance; it rarely or never presents crystal outlines, owing to the transformation of its outer part into a green hornblende, which presents the following pleochroism: X, colourless or faint yellowish green; Y, deep green, occasionally bluish green; Z, green or bluish green; and extinguishes at a high angle, as much as 25°: it closely resembles Hastingsite.

The biotite, at least in part, is later than the hornblende; in one instance it includes a corroded crystal of hornblende which itself encloses a core of augite. It occurs in rather large crystals, brown when fresh (green when altered), and strongly pleochroic: X, clear yellow; Y and Z, deep brown. A good deal of apatite, sometimes in unusually large crystals, is included in the biotite, but no zircons. The only zircon observed was in quartz.

The felspars followed the biotite, and the orthoclase the albite which occurs in idiomorphic hypidiomorphic crystals, sometimes corroded and embedded either in orthoclase or quartz. The orthoclase and microperthite form large hypidiomorphic crystals.

The quartz, which was the last to consolidate, is interstitial; it has acted as a corrosive solvent on most of the other minerals.

Some secondary sphene and calcite are present in the rock.

**38. Ümür-tagh.** From big rock wall, six miles NW. of C. 218 (02). *Pegmatitic Granite.*

Coarse pegmatitic granite with red felspar, chiefly orthoclase of sp. gr. 2·55. Sp. gr. of rock, 2·61.

**39. Ümür-tagh.** Thirteen miles NW. of C. 218 (03). *Granophyre.*

A fragment of a brownish-grey fine-grained rock with numerous internal close fractures.

It consists of a micrographic growth of quartz and orthoclase; primary ferro-magnesian minerals are absent, but are represented by some rare sporadic crystals of epidote.

The micrographic or micropegmatitic material has been deformed by pressure and in many cases sheared into phacoids which are sometimes well defined by thin lines of an opaque white substance which appears to be altered epidote.

The thread-like rays of the micrographic radioles have been bent out of their original course, quartz grains have been crushed along the margin and reconstituted: they show undulose extinction, and this is represented in the felspar crystals by irregular bands crossing a section, which extinguish at a slightly different angle from the rest of the crystal.

A general parallelism of structure has been impressed upon the rock.

**40. Ümür-tāgh.** From a decayed ridge, nine miles NW. of C. 218 (04). *Arcalite (Aplite).*

A salmon-red rock composed almost entirely of quartz and felspar. The quartz is dusty with vapour cavities and undetermined particles. The felspar is orthoclase, microcline, and albite in hypidiomorphic crystals.

Some altered biotite, corroded by quartz and associated with sphene, is also present as well as a little magnetite.

**41. Ümür-tāgh.** Cliffs near C. 219 (01). *Riebeckite Granophyre.*

A 'joint' fragment of a compact blue-grey rock.

Under the microscope it presents a colourless transparent ground mass which is shot through with numerous dark bristle-like prisms of a ferro-magnesian mineral. Between crossed nicols it is resolved into radiate micrographic intergrowths of quartz and felspar; probably a soda orthoclase. Near the centre of these intergrowths the two minerals are in the form of fine threads, sometimes as fine as in a spherulitic growth, but they enlarge as they radiate outwards, and the quartz is continued beyond the felspar to end in wedge-shaped sections or to form a continuous border to the whole growth.

The ferro-magnesian minerals are of two kinds, readily distinguished by their difference in colour, one being of a blue tint, the other almost colourless, but with a slight tinge of green. The blue mineral is evidently riebeckite; it extinguishes at a small angle and is highly pleochroic: X, blue; Y, blue; Z, faint yellowish green. The faint green mineral agrees in all its characters with aegerine.

**42. Bai. C. 219.** *Jasper and Felsite.*

A worn fragment of red jasper and dark grey felsite.

The jasper consists of quartz crowded with ball-like growths and minute particles of ferric oxide. It has been brecciated, and the widely open intervals between the resulting fragments filled with quartz, epidote, and small crystals of magnetite. The consolidated rock thus produced was again fractured and recemented with quartz, which forms very thin veins running in various directions and of various length, some extending across the whole section.

The grey rock, which is sharply defined from the jasper, represents the original igneous material which was transformed into that substance, and though not jasperized itself it is highly altered. It is not homogeneous. The greater part is a uniform microcrystalline ground mass; the remainder is similar, but contains phenocrysts of a felspar which, though thoroughly sericitized or converted into obvious crystals of muscovite and sometimes of epidote, still, in some cases, retains traces of albitic twinning.

The whole of the grey rock, which we may doubtfully term a felsite, is traversed by thin veins, some of which extend through it and the jasper. They are usually filled with quartz, but some, more irregular in form and less straight and continuous than the rest, with calcite.

**43. Bai.** *Orpiment Limestone.*

This is a very fine-grained limestone composed of extremely minute granules of calcite and traversed by many fine veins in various directions; in and about these the calcite forms a mosaic. Evidently the limestone was brecciated after consolidation, and in some of the resulting fissures orpiment was deposited; this sometimes lines the sides of the veins and gives off short processes into the surrounding matrix; if the vein is very narrow, it may be filled with a string of orpiment crystals unaccompanied by calcite. In places the orpiment forms large 'bunches' and thus seems to have replaced the calcite.

## KURUK-TĀGH

**44. Kuruk-tāgh. C. ccxli.** *Malachite.*

A fragment of vein-stone consisting of a coarse mosaic of calcite invaded by quartz and malachite. The calcite is dusty with ferric hydrate and contains patches of quartz and malachite, but it also appears to have grown upon already deposited malachite. The malachite is for the most part granular, the granules being apparently minute crystals, but in some places it occurs in stellate, spherulite-like growths of long radiating prisms. These are pleochroic, with X colourless; Y, bluish-green.

**45. Kuruk-tāgh. C. ccxli (02).** *Rhyolite.*

A worn fragment of light red rhyolite, sp. gr. 2·59. The ground mass consists of minute crystals of quartz and felspar, through which are scattered micrographic growths of quartz and felspar with broken and corroded phenocrysts of quartz.

The micrographic growths rarely assume a spherulitic form; most commonly their form has been determined by the felspar, so that they build up micrographic crystals of this mineral. Sometimes, however, the growth escapes from this influence and is bounded by a curved outline.

Ferro-magnesian minerals are absent, magnetite is very rare, but there are abundant granular patches of ferric hydrate, and to these the rock owes its colour.

**45 a. C. ccxli.** *Quartz.*

**46. Konche-daryā. C. ccxlix (04).** *Mica Schist.*

**47. Kuruk-tāgh, P'o-ch'êng-tzŭ? (05).** *Vesicular Rhyolite.*

About one half of this rock is a coarse mosaic of calcite which fills what were originally large winding cavities in the unconsolidated lava. The other half was itself highly vesicular, the vesicles occupying more space than its substance. They are mostly circular or elliptical in section, sometimes confluent, and occasionally drawn out into long parallel tubes as in pumice. They are now filled sometimes with quartz, sometimes with felspar, at others with calcite or chlorite, or with more than one of these minerals. Quartz, when it occurs with chlorite, usually lines the wall of the vesicle, leaving the central space to the chlorite; when it occurs with calcite, it may fill one half of the vesicle and the calcite the other. The vesicles are bounded by a definite wall consisting of opaque white material, which, however, under high magnification is resolved into a granular aggregate of colourless transparent substance which has a high refractive index.

The substance of the lava consists of irregular intergrowths of quartz and felspar. Some glassy clear oligoclase-albite is often present, but crystals of orthoclase have not been observed.

**48. Kuruk-tāgh, P'o-ch'êng-tzŭ? (08).** *Schistose Volcanic Agglomerate.*

This consists of angular fragments of igneous rocks and isolated minerals scattered through a very fine-grained matrix. The most obvious of the igneous rocks is rhyolite, which contains phenocrysts of quartz, turbid orthoclase, and albite in a micropoecilitic ground mass; some fragments of more basic material are present. The dispersed minerals are andesine, decomposed felspars, and quartz. A good deal of mica and chlorite as well as a few crystals of tourmaline are present.

The rock has been subject to pressure, which has given rise to undulose extinction in the quartz and to a certain amount of schistosity.

**49. Kuruk-tāgh (010).** *Limestone.*

A compact almost white limestone; originally very fine grained, but subsequently brecciated and reconsolidated by calcite, which now forms coarse mosaics. Some of the veins traversing it are filled with quartz with which a little ferric oxide or hydrate is associated. The quartz includes small grains of calcite—indicating that it has been deposited in place from solution—and sometimes occurs in isolated crystals.

The residue which remains on solution consists of quartz in angular fragments, crystals, and cryptocrystalline grains, and muscovite mica in ragged flakes.

**50. Kuruk-tāgh (011).** *Adamellite.*

A very coarsely crystallized rock with red felspar.

The felspar is partly a perthitic orthoclase, partly albite. In common with the rest of the rock it has suffered from pressure, by which the twinning laminae of the albite have been bent in some cases into regular curves.

The quartz occurs as a coarse mosaic with irregular sutures; it presents undulose extinction and is crossed by numerous lines of vapour cavities which run more or less parallel in groups and seem to represent healed-up cracks. They are continued right through the mosaic and as lines of alteration into the adjacent felspar. There are three of these groups; two of them, better marked than the third, intersect approximately at right angles.

The only primary mica is an altered biotite, with pleochroism: X, pale straw yellow; Y and Z, deep olive green. A good deal of apatite in comparatively large crystals and some zircons are present; the latter, when included in the biotite, are surrounded by a faint pleochroic halo.

Some crystals very much altered suggest the original presence of hornblende, but this cannot be definitely asserted.

**51. Kuruk-tāgh (013).** Pegmatitic rock with red felspar, probably an apophysis of No. 50. Sp. gr. of rock, 2·61; of red felspar, 2·56; of albite, 2·615.

**52. Kuruk-tāgh (014).** *Marble.*

A white saccharoid marble, leaving on solution a small amount of residue consisting chiefly of muscovite in small flakes which sometimes retain their characteristic crystalline form; of other minerals there are apatite, zircon, and tourmaline. This rock is probably identical with No. 53; the mica of the residue differs simply by less frequently presenting crystal outlines.

**53. Kuruk-tāgh (015).** *Marble.*

A small fragment of salmon-red saccharoid marble.

A coarse mosaic of calcite, the component crystals ranging from 0·3 to 1·0 mm. in diameter. The rock owes its red colour to disseminated fine particles of ferric oxide. Under a high magnification some other fine particles, which are undeterminable in a thin slice, are visible. These, however, are left as a residue after solution in acid; among them and most remarkable are flakes of muscovite mica, too thin to give an axial figure in convergent light, and often presenting perfect hexagonal forms. The smallest of them measures ·01 mm. in diameter, the largest as much as ·112 mm. Their refractive index is close upon 1·57 and their specific gravity 2·715, sometimes a little higher. The perfection of these completely unaltered forms seemed to suggest their formation in place, but this view was rejected on finding that a large number present rounded angles and not infrequently oval forms, and this even when of very minute size; thus the smallest oval flake measures only ·004 mm. in length. Further, in addition to the mica, some other minerals are present, such as rutile and tourmaline, which are evidently derivative.

There can be little doubt, therefore, that the spangles of mica were transported by wind or water and were deposited in the sea. How easily they were winnowed out from coarser material was impressed upon us when collecting the residue left on solution; they remained a long time in suspension, and, unless great care was exercised, were carried away in making a decantation.

Some of the mica contained scarlet granules of ferric oxide or ferric hydrate, sometimes arranged in linear rows running parallel with each other and the axis *a* or *c*.

**54. Kuruk-tāgh (016).** *Quartz Mica Schist.*

A closely foliated and highly fissile quartz schist with obvious biotite on the foliation planes.

It consists of a quartz mosaic, for the most part very clear, with numerous vapour cavities, sometimes dusty and occasionally including a crystal of apatite.

The biotite is fresh and clear, light brownish yellow, with pleochroism: X, almost colourless to pale straw yellow; Y and Z, yellowish brown. It includes minute crystals of zircon surrounded by pleochroic haloes: the largest seen of these has a radius of ·0281 mm.

Muscovite is present in fair amount. Felspar was searched for but not found.

**55. Kuruk-tāgh (017).** *Dolerite.*

Composed of a network of labradorite crystals in plank-like sections which sometimes approach a stellate arrangement, and colourless diopside which occurs in large plates, ophitic with the labradorite and in interstitial crystals. It is sometimes twinned, and in some instances the members of a twin interpenetrate each other in a kind of micrographic growth.

The diopside frequently forms the core of a hornblende

crystal; a boundary between the two minerals is sharply marked and is without reaction products. Hornblende without included diopside is rare or absent. It presents the forms (110), (010), and (100), is yellowish brown in colour, with pleochroism: X, pale yellow; Y, light brown; Z, brown, and extinguishes at 14°.

Secondary interstitial chlorite is present, but nothing has been seen to suggest the original presence of olivine. There is a good deal of magnetite.

**56. Achchik-bulak, Kuruk-tāgh** (01). *Adinole* (?).

A small fragment of a close-jointed rock weathering brown, breaking along what appear to be planes of lamination with a feathery fracture such as is often presented by clay ironstone, which the specimen much resembles. It fuses to a black bead and colours the flame with sodium and potassium. A qualitative analysis showed the presence of alumina, ferric oxide, and lime.

The microscope reveals the presence of minute angular fragments, crystals, and rounded grains of quartz, sections which appear to be those of some felspar but often isotropic, brownish granules, and associated rhombohedra of calcite or siderite, and finally very minute granules, from ·001 mm. to an average of ·002 mm., universally distributed through the base, which behaves as an isotropic substance. To clear the thin slice it was treated with dilute hydrochloric acid, which removed all traces of calcite or siderite, but did not affect the brownish or ochreous granules.

The slice was then treated with staining reagents which coloured the very minute granules deeply, but did not affect the base, which was more clearly displayed than in the untreated slice and still preserved its isotropic character.

The specific gravity of the rock fragment was found to be 2·75.

**57. Singer, Kuruk-tāgh** (01, 02). *Schistose Grit.*

Irregular fragments of grit, including minute pebbles of quartz.

**58. Arpishme** (02). *Gypsum.*

Thin cleavage flakes of gypsum.

**59. Iltar-ghush-bulak** (01). *Gypsum.*

A fragment of what must have been a very large crystal.

**60. P'o-ch'êng-tzŭ, Kuruk-tāgh.** *Gritty Limestone.*

A fragment of red limestone, very similar in appearance to some of the English Triassic grits.

It consists chiefly of small rhombohedra of calcite, on average ·0186 mm. in diameter, and severally bordered by ferric hydrate, which is also dispersed in minute transparent scarlet granules throughout the rock. There are also scattered fragments of quartz, both angular and rounded, altered felspar, and opaque altered ilmenite.

The rock dissolves readily in dilute hydrochloric acid, and the solution yields on analysis alumina, iron, manganese, lime, and a trace of magnesia. The residue consists of ferric hydrate, orthoclase, quartz, cryptocrystalline grains, and a little muscovite, as well as crystals of tourmaline, zircon, and rutile.

A vein of comparatively coarse mosaic calcite traverses the slice, and accompanying this is a fibrous colourless mineral of about the same refractive index as balsam, of low, double refraction, and optically negative. It much resembles the spherulitic material of a rhyolite; but the quantity at our disposal is too small for its identification.

**61. Bakri-changche-bulak, Kuruk-tāgh** (01–04). *Granophyre.*

These specimens are so similar that they might have come from different parts of the same rock, and a single description will suffice for all.

There is a small quantity of ground mass consisting of minute crystals of quartz and felspar, but the greater part of the rock consists of intergrowths of quartz and felspar as well as abundant spherulites of the typical positive kind. Some of the spherulites contain small elongated crystals of felspar which lie athwart the radial structure.

Phenocrysts of orthoclase and a plagioclase which behaves as albite, some of comparatively large size, are numerous, and biotite, green by alteration, is scattered throughout the mass in ragged flakes and linear strips which resemble agerine.

Pleochroic aureoles are present, surrounding in some cases zircon, in others a small grain of iron ore. The maximum diameter of the radii of the aureoles is ·0185 mm.

The felspars are much sericitized, and patches of secondary muscovite are present in all the specimens, in some secondary calcite also.

**62. Bakri-changche-bulak** (06 and 08). *Adamellite.*

These two specimens are also closely similar, as is 07, which has not been cut.

They are a coarsely crystallized rock composed chiefly of large hypidiomorphic crystals of albite and orthoclase with a little microcline and perthite. The quartz mosaics are mostly interstitial and dentate the margins of the felspar crystals. Occasionally a pegmatitic growth is to be seen.

Biotite is present in small quantity only. The rock has been subjected to considerable pressure, which has fractured, dislocated, and even crushed some of its constituents. The quartz shows undulatory extinction, and in specimen 08 a large albite crystal is crossed, at about right angles to the lamellar twinning, by six more or less parallel cracks, along all of which it has been faulted, and along some completely brecciated.

**63. Yardang-bulak.** *Quartz.*

Two much water-worn crystals of milk-white quartz.

**64. Āltmish-bulak, Kuruk-tāgh** (01). *Calcareous Grits.*

A fine-grained, laminated grey grit, composed chiefly of angular fragments of quartz, orthoclase, and plagioclase, with subordinate vesicular volcanic glass, biotite, muscovite, and chlorite. A few grains of calcite appear to be primary, but the greater part of this mineral, which is abundant, is a secondary product deposited in the interstices between the constituent grains and sometimes replacing them.

Another interstitial substance, white by reflected and black by transmitted light, is also present; it lines the vesicles of the volcanic glass and also occurs in well-defined grains. It

is very finely granular, and it owes its opacity to its structure, its component granules being transparent.

**65. Altmish-bulak, Kuruk-tāgh** (02). *Grit.*

A fine-grained grey grit, breaking with irregular fracture; composed chiefly of angular grains of quartz, but a good deal of felspar, both orthoclase and plagioclase, is present, much of it quite fresh. There are many opaque white grains and some iron ores. Secondary calcite exists, but is not abundant. The ground mass is difficult to analyse: richly scattered through it are minute particles which are often rod-like, resembling bacteria in form and size; their refractive index is above that of balsam, and they seem to extinguish parallel to their length; but they are too minute for identification.

## SOUTHERN EDGE OF TAKLAMAKĀN

**66. Kara-tāsh** (01). From terminal stony ridge on Sai, three miles to W. of Tailik-tutkan, Endere-Charchan route. *Fine-grained Grit.*

A remarkably fine-grained grit, composed chiefly of grains of quartz ranging mostly from ·004 to ·02 mm. in diameter, and so compact that, except for scattered dust of sericite, it appears in ordinary light to be a homogeneous continuum. A few sericitized crystals of orthoclase occur here and there, and also of magnetite and pyrites. One or two veins of quartz mosaic cross the slice, and there is a little secondary calcite.

**67. Kara-tāsh** (02). Same locality as No. 66. *Grit.*

A coarser grit consisting chiefly of angular, and some rounded, grains of quartz with an interstitial finer ground mass. Some sericitized felspar and fresh oligoclase are present, as well as secondary calcite, chlorite, and ferric hydrate.

**68. Imām-Jāfar-Sādik**, S. of Taklamakān (01). Pebbles from sacred hill of Imām-Jāfar-Sādik Ziarat (25. i. 1901). *Spherulitic Rhyolite.*

This is a rock of very heterogeneous structure, but its most striking character is its well-marked but much-disturbed fluxional banding.

Between crossed nicols illuminated streaks with a thread-like structure resembling that presented by the material of spherulites are seen, but the threads, instead of being directed radially, run in parallelism with the length of the streak; sometimes minute elongated prisms of orthoclase may be seen within a streak, also running parallel, swimming with the stream. These and the threads themselves extinguish parallel with their length and give a negative optical sign.

On encountering a phenocryst or patch of coarser material they bend round it or enclose it as an 'eye'.

Bordering these streaks and sometimes composing them, negative microspherulites occur, and in places, acting as foreign bodies, large spherulites, which, however, are rarely spherical and are sometimes drawn out into long fusiform bodies in the direction of the flow.

In addition, bands and patches of a comparatively coarse mosaic of quartz or intergrowths of quartz and felspar are present and as well whole or fragmentary phenocrysts of orthoclase, microcline, and oligoclase albite. From the phenocrysts spherulitic growths sometimes proceed.

No biotite is present, but there are several patches of epidote. Magnetite appears to be replaced by sporadic crystals of pyrites.

**69. Imām-Jāfar-Sādik** (02). *Rhyolite.*

This is a rather remarkable ck . It is constituted of similar material to that of the preceding specimen, but spherulitic growths are rare. The fluxion structure is clearly shown by the interstitial glassy basis in which the crystalline constituents are immersed; but what is most striking is the fragmentary state of all these constituents. The quartz in particular arrests attention; it has been broken up into forms that recall those of the broken glass in volcanic ash, apparently as a consequence of the presence of vesicles or included globules of base in the original crystals. Sometimes the several fragments of a shattered individual remain in sufficient proximity to show that it has been broken in place.

It would appear that the lava, after ceasing to flow and already on the point of solidifying, but still plastic, had again been set in motion and then completed its consolidation.

The felspars present are of the same kinds as those present in No. 68, but there is stronger evidence of the original presence of biotite, which is now represented by shreds in the last stage of alteration. The rock is fairly fresh, but a little secondary calcite is present.

**70. Imām-Jāfar-Sādik** (03). *Rhyolite.*

A completely crystalline, banded rock, which much resembles a granophyre. Spherulites of various degrees of fineness or coarseness form the greater part of the rock; quartz occurs as the final product of consolidation.

**71. Mīrān** (05). *Quartz Hornblende Schist.*

This dark green schist is composed chiefly of a quartz mosaic with foliae of green hornblende and associated brown biotite.

The hornblende is strongly pleochroic: X, pale yellow to almost colourless; Y, deep green; Z, bluish green. Its angle of extinction is 23°.

The biotite is also strongly pleochroic: X, faint yellow, Y and Z, deep brown. Both it and the hornblende are devoid of pleochroic haloes.

The quartz mosaic includes grains of anorthite twinned on the albite plan; they are glassy clear, and but for the twinning might easily be overlooked.

Minute crystals of magnetite are scattered through the rock, and are particularly abundant in the numerous 'eyes' formed by the swelling out of the quartz foliae; in one instance the greater part of an eye is formed by a comparatively large lenticle of magnetite.

These eyes are frequently dusty with fine granules of an undetermined mineral, and often contain a good deal of apatite.

## II. THE SANDS

An approximate mechanical analysis was made by sifting the samples through sieves of 90, 60, and 30 mesh. This gave four groups, viz.

(1) Grains smaller than ·2 mm.
(2) Grains between ·2 mm. and ·4 mm.
(3) Grains between ·4 mm. and ·7 mm.
(4) Grains larger than ·7 mm.

The volume of each group was measured and the sizes determined by measurement under the microscope with an eyepiece micrometer. Aggregates and concretions were ignored in making the mechanical analysis.

The grains were separated in a Sollas separating funnel, by means of bromoform (sp. gr. = 2·815), into three groups, viz.

(1) Minerals with sp. gr. > 2·815, called the heavy minerals.
(2) Minerals with sp. gr. between 2·815 and 2·60.
(3) Minerals with sp. gr. < 2·60, called the light minerals.

Salt and gypsum were detected in the cements or the fine powders by treatment with water or HCl, and allowing a drop of the solution to evaporate and deposit crystals of salt and gypsum when present. Magnetite was picked out with a bar magnet.

Some of the larger grains and pebbles were crushed in a diamond mortar and their structure and composition examined under the microscope.

*Description of the Mineral Grains.*

The extinction angles quoted are the maximum values observed, and when pleochroism is noted the colour of the vibration having the greater refractive index is stated first.

*Amphibole* is abundant in nearly all samples. The grains vary from a prismatic type, usually with broken ends, and rarely terminated by faces at one end, to almost completely rounded grains. The majority of the grains show a well-developed cleavage: such grains give in convergent light a partial negative interference figure with the plane of the optic axes slightly oblique to the cleavage cracks.

Five types can be distinguished, and are referable to:—

(1) *Tremolite.* Colourless, generally finely striated. Extinction angle 19°.

(2) *Actinolite.* Light green. Pleochroism—light bluish green > light green to light olive green. Extinction angle 19°.

(3) *Hornblende.* Dark green to blue green. Pleochroism—dark green to blue green > light green to olive green. Extinction angle 25°.

(4) *Basaltic Hornblende.* Brown. Pleochroism—dark brown > light brown. Extinction angle 10°. Less common than (1), (2), and (3).

(5) *Glaucophane.* Bluish violet. Pleochroism—blue > violet. Extinction straight. Rarely seen in three samples in rounded prismatic grains.

Types (1) and (2) are, in general, more prismatic in character and less rounded than types (3), (4), and (5).

Some grains are partly, or wholly, altered into an aggregate of fine needles with very low double refraction, apparently chlorite.

*Andalusite* is rare in rounded, colourless grains with irregular black inclusions. Pleochroic in patches—colourless > pink.

*Apatite* is common in colourless, rounded prisms and grains.

*Augite* is common in a number of samples in light green, more or less rounded, prismatic grains. It is not pleochroic and has a maximum extinction angle of 45° measured to the prism. Some grains give a partial positive interference figure. The cleavage is not well developed.

*Biotite* is abundant in a great many samples in well-rounded to subangular cleavage flakes. The double refraction is very low and the optic axial angle is variable, but generally nearly 0°. Several flakes have needle-like inclusions arranged at 60° to each other, and in one flake at 30° to each other. The 'needles' have a positive elongation, and give polarization colours of the first order grey; the extinction angle varies from 0° to 25°.

They are probably amphibole. A few flakes have haloes round colourless crystal inclusions. Many grains are bleached and others are completely altered into green chlorite.

*Calcite* is abundant in most samples in colourless, generally rounded, cleavage flakes, many of which show twin lamellae.

*Chloritoid* is common in one or two samples in subangular cleavage flakes. They show characteristic pleochroism—indigo blue > olive green, and the positive acute bisectrix emerges almost normal to the cleavage.

*Cyanite* occurs in a number of samples but is never very common. The cleavage flakes are generally angular, rarely rounded, and have characteristic optical properties.

*Chlorite* is common as an alteration product of biotite and less common after amphibole.

*Diallage* is rare in rounded prismatic grains which have black rod inclusions parallel to the prism. One optic axis emerges almost normal, and the plane of the optic axes is parallel to the inclusions. The double refraction is positive.

*Dolomite* was observed in one sample (No. 101) only. It is present in abundance in yellow cleavage grains which show varying degrees of rounding. The grains are soluble with effervescence in hot dilute HCl only. In well-defined cleavage flakes the refractive index of the extraordinary ray lies between 1·586 and 1·60 (the calculated value for dolomite is 1·588, for calcite 1·567, and for chalybite 1·748).

*Epidote* is common in many samples in irregular, subangular grains with pleochroism—yellowish green > pale yellow or colourless. Occasionally, smaller grains of prismatic habit give striking steely blue and yellow—first order polarization colours. One optic axis emerges within the field of view and shows dispersion $\rho > \nu$; the plane of the optic axes is transverse to the prism and the double refraction is negative.

*Gypsum* is very abundant in one or two samples in rounded crystals, simple and twinned, of all sizes. It is also abundant in a few samples in fine-grained concretions.

*Garnet* occurs in nearly all samples in angular to subangular isotropic grains. They are usually colourless and faint pink, but faint sherry-coloured grains are sometimes seen. Grains with crystal (dodecahedral) outline are very rare. Some grains contain colourless crystal and irregular black inclusions.

*Hypersthene* is common in one or two samples in subangular, prismatic grains, pleochroism green > red. Some grains have black rod inclusions arranged parallel to the green vibration, and brown plates arranged in rows parallel to the red vibration.

*Magnetite* is common in shiny black grains which often present an octahedral outline.

*Microcline* is present in most samples in angular to rounded grains, which vary from clear to turbid in the same sample.

*Muscovite* is common and sometimes abundant in rounded and broken cleavage flakes which sometimes contain inclusions of colourless crystals of apatite. Undulose extinction is common, and many grains have their edges battered and turned up and thus show a rim of brighter polarization colours.

*Orthoclase* is common in all samples. The grains vary from angular to rounded and from clear to turbid in the same sample.

*Plagioclase* is generally present but is never very common. The grains, which vary from angular to rounded and from clear to turbid, are all referable to oligoclase-andesine, as shown by their extinction angles and refractive index.

*Quartz* is abundant in all samples in grains which show considerable variation in the degree of rounding, in clearness, and in the number and nature of the inclusions they contain. Simple and compound grains occur, and undulose extinction is common.

*Rutile* is rare and present in few samples. Two types are seen:

(*a*) Yellow prisms, with rounded ends or with one end terminated by faces; and

(*b*) Foxy red, rounded prisms and grains.

*Salt* is present as a cement in one or two samples.

*Staurolite* is rare and confined to a few samples. The grains are angular to subangular, yellow to brownish yellow, and show pleochroism—yellow or brownish yellow > colourless or faint yellow. Some grains are quite clear, others contain rounded colourless crystal inclusions with or without irregular black inclusions. Very rarely grains show well-developed crystal outline.

*Sillimanite* is rare and confined to a few samples. It occurs as clear colourless prisms with straight extinction, positive elongation, and rather high double refraction.

*Sphene* is persistent and sometimes common. The grains are irregular, colourless, and subangular, and give the characteristic positive interference figure with strong dispersion of the optic axes.

*Spinel* is present in two samples in angular, green, isotropic grains.

*Tourmaline* is persistent but never common in pleochroic prismatic grains which generally have rounded ends and are rarely terminated by faces at one end. The colour is light brown, and small, irregular, black inclusions are sometimes present.

*Zircon* is present in small amount only in most samples. Clear, colourless crystals terminated by the simple pyramid {111} are the general type, but a few crystals are terminated by the steep pyramid {311} or by a combination of {311} and {111}. Rounded and subangular grains also occur. Many crystals contain small rounded crystal inclusions, and a few have long 'tubular' cavities. An occasional crystal shows well-marked zoning and exhibits lower double refraction than usual.

## DESCRIPTION OF THE SAMPLES EXAMINED

The references to locality given in brackets refer to the *Maps of Chinese Turkestan and Kansu made during the explorations of Sir Aurel Stein, K.C.I.E., 1900–1, 1906–8, 1913–15*; thus (7. B 4) indicates that the locality is on Sheet 7, square B 4.

The samples are numbered consecutively from 101 onwards.

**101. Soil under surface gravel of Sai edge, Lāl-tāgh (7. B 4).**

A light brown sand containing mica and some irregular aggregates from 2 mm. to 3 mm. in size.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 92 % | 3 % | 3 % | 2 % |

Of the heavy minerals, muscovite and biotite are abundant and green amphibole is common.

Dolomite in rounded yellow cleavage grains is abundant; this is the only occurrence of this mineral.

The larger grains consist mainly of well-rounded quartz and grey, brown, and black grains of a very fine-grained indeterminate rock. A few grains consist of plagioclase, green amphibole, fine colourless needles, and black opaque specks.

The aggregates consist of grains of the loose sand lightly cemented together by salt.

**102. Yārkand river-bed near Marāl-bāshi (8. A 1).**

A light grey sand with a few large flakes of mica reaching 1·5 mm. in diameter.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. |
|---|---|---|---|
| Mechanical analysis: | 64 % | 30 % | 6 % |

Of the heavy minerals, magnetite, biotite, muscovite, and green amphibole are abundant, garnet is very common, and colourless sphene common.

Fine-grained composite grains are abundant.

**103. Sand and detritus from dune, north end of Kum-tāgh. South of Camp XXIV (8. B 1).**

Grey sand with many coloured grains and much mica.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 40 % | 44 % | 15 % | 1 % |

Of the heavy minerals, biotite, muscovite, and green amphibole are abundant, and garnet and magnetite are common.

**104. Fine dust, five miles SE. of Camp XXV (8. B 2).**

Fine yellowish-brown sand with mica and some irregular aggregates up to 20 mm. long which appear to have been formed round reeds, &c.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. |
|---|---|---|---|
| Mechanical analysis: | 93 % | 6 % | 1 % |

The quartz grains are all rather angular. Biotite (many flakes with parallel needle inclusions) and green amphibole are abundant, and magnetite is common in the heavy minerals.

The aggregates consist of grains ranging from ·6 mm. down to the very finest material, but there is a larger proportion of large grains (·4 mm. to ·6 mm.) than in the loose sand. The cementing material is calcium carbonate. Cyanite in angular cleavage flakes is the only mineral found exclusively in the aggregates.

**105. Sand from dune, two miles NW. of Camp XXVI (8. B 2).**

Fine light brown sand with many coloured grains and a few flakes of mica.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. |
|---|---|---|---|
| Mechanical analysis: | 43 % | 36 % | 21 % |

The bulk of the heavy crop consists of composite grains. Of the simple, heavy mineral grains, muscovite, biotite, and green amphibole are abundant, and garnet, magnetite, and epidote are common.

**106. Red (coarse) sand from slope of 'Dawān' (dune ridge), two miles NW. of Camp XXVII (8. C 2).**

Light brown sand with many coloured grains and some mica.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 89 % | 5 % | 5 % | 1 % |

There are many composite grains, among which grains of a fine-grained rock with opaque black inclusions are abundant. In the heavy crop green amphibole is abundant, and biotite, muscovite, magnetite, and garnet are common.

**107. Eroded stone fragments from surface of**

**valley bottom, six miles NW. of Camp XXVIII (8. C 2).**

Light brown sand with abundant mica, many coloured grains, and a few tabular aggregates up to 20 mm. × 15 mm. × 5 mm.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 75 % | 6 % | 2 % | 17 % |

Of the heavy minerals, biotite, muscovite, and green amphibole are abundant, and magnetite is common.

The aggregates consist of the same type of grain as in the loose sand cemented by calcium carbonate.

The grains larger than ·7 mm. consist of flakes of a brown, fine-grained composite rock which is transparent only in very thin fragments, and they reach a size of 2 mm.

**108. Sand from red patch at foot of dune, about three miles SE. of Camp XXVII (8. C 2).**

A light brown sand with many coloured grains, flakes of mica, and thin flakes of a brown rock reaching 7 mm. in size.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 75 % | 14 % | 2 % | 9 % |

There are many composite grains. Of the heavy minerals, biotite, muscovite, and green amphibole are abundant, and garnet, epidote, and sphene are common.

The brown rock flakes are of the same type as in Sample 107 and form the portion greater than ·7 mm.

**109. Clay from erosion terrace about five miles to SE. of Camp XXVII (8. C 2).**

Very fine light grey powder which tends to aggregate in small pellets. The bulk of the sample consists of grains ·01 mm. and less in diameter and contains abundant biotite. Occasional angular grains of quartz, biotite, calcite, and green amphibole reach ·04 mm. in diameter. A few grains ranging from ·3 mm. to ·6 mm., obtained by decantation, consist mainly of quartz with a little biotite, calcite, green amphibole, orthoclase, microcline, and plagioclase.

**110. Sandstone from Mazār-tāgh, below fort (13. B 4).**

Fine brownish-red sand with mica and a few grains from 1 mm. to 2 mm. in diameter.

| | < ·2 mm. | ·2–·4 mm. | > ·4 mm. |
|---|---|---|---|
| Mechanical analysis: | 98 % | 1 % | 1 % |

Of the heavy minerals, biotite, muscovite, and green amphibole predominate.

Among the larger grains, quartz, muscovite, quartz-felspar rock, and a fine-grained amphibole schist were recognized.

**111. Soil from eroded bank below N. III, Niya Site (19. B 1).**

Very fine light grey powder which contains some calcium carbonate. All the grains are less than ·2 mm. in diameter, except a few flakes of biotite which have a maximum diameter of ·35 mm. A great deal of the sample is less than ·01 mm. in diameter. Of the larger grains, angular quartz predominates, and altered and unaltered biotite, muscovite, and green amphibole are prominent. There are also many indeterminate composite grains.

**112. Sand from dune W. of Yaka-toghrak (Vāsh-shahri) (26. B 3).**

Well-rounded, multicoloured sand with some mica.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 31 % | 22 % | 46 % | 1 % |

Microcline is strikingly abundant in the light minerals. Of the heavy minerals, green amphibole is abundant, and garnet and biotite are common. A few of the biotite flakes had haloes surrounding colourless crystal inclusions.

There is a large number of composite grains.

**113. Coarse sand from foot of dune, Uzun-chaval, Vāsh-shahri (26. C 3).**

Well-rounded, light brown sand with many coloured grains.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 24 % | 24 % | 24 % | 28 % |

The predominant heavy minerals are garnet and green amphibole. Biotite is not very common, but one flake showed haloes surrounding colourless crystal inclusions. Another flake had needle inclusions arranged at 60° with each other, the needles having an extinction angle of 25°.

The larger grains reach 1·5 mm. in diameter, and in addition to quartz and felspar there are many composite grains.

**114. Drift-sand from top of dune, Uzun-chaval, Vāsh-shahri (26. C 3).**

Fairly well-rounded, light grey sand, with many coloured grains.

| | < ·2 mm. | ·2–·4 mm. |
|---|---|---|
| Mechanical analysis: | 40 % | 60 % |

A few grains only reached a diameter of ·5 mm.

Of the heavy minerals, green amphibole is abundant, muscovite scarce, and botite is absent. There are many composite grains.

**115. Drift-sand (wind worn) from Sai edge, E. of Yillik (26. D 3).**

Fairly well-rounded, multicoloured sand.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 8 % | 6 % | 17 % | 69 % |

The large grains reach 2 mm. in diameter, and include quartz, orthoclase, and limestone, in addition to the many indeterminate fine-grained grains.

Among the smaller heavy grains, biotite and green and colourless amphiboles are abundant.

**116. Sand from ruin M. XIII, Mīrān (30. B 2).**

Light brown sand with many coloured grains, mica, and some pebbles up to 20 mm. in diameter.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 50 % | 20 % | 15 % | 15 % |

The larger grains and pebbles include orthoclase, quartz, limestone, and fine-grained green amphibole schist in addition to the indeterminate grains.

Of the heavy minerals, biotite and green amphibole are abundant.

**117. Sand from bank of Kuruk-daryā, one mile SE. of LS. Site, Lou-lan (29. B 3).**

Multicoloured sand with many well-rounded grains.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 29 % | 11 % | 5 % | 55 % |

The larger grains, which range up to 2 mm., consist of quartz, felspar, red and purple fine-grained grits, and many fine-grained indeterminate grains.

Biotite and green amphibole are abundant in the heavy crop.

**118. Sand from Yārdangs, three miles SW. of Camp cclxi a, Kuchā (17. D 2).**

Multicoloured sand with many well-rounded grains.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 34 % | 7 % | 4 % | 55 % |

The larger grains reach 1·5 mm. in diameter.

Of the heavy minerals, biotite and green amphibole are abundant and apatite is common.

Quartz and turbid red felspar are common among the large grains, which include purple grains of orthoclase + green amphibole, fine-grained quartz + felspar, and many indeterminate grains.

**119. Camp ccxlviii a, about twelve miles NNW. (29. C 4).**

Very fine light brown powder with irregular aggregates up to 5 mm. long.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 94 % | 2 % | 3 % | 1 % |

The fine material contains gypsum and calcium carbonate. Green amphibole and biotite are abundant among the heavy minerals. Among the larger grains are muscovite, well-rounded quartz, turbid felspar, and the aggregates which consist of the powder cemented by gypsum.

**120. Camp ccxlviii a, eight miles NNW. (29. C 4).**

This consists of dark brown, branching aggregates, many of which are tubular, reaching 10 mm. in length, with a small amount of a light brown sand, most of which is smaller than ·4 mm., but it includes one or two well-rounded quartz grains up to 1 mm. in diameter.

The aggregates consist of brown sand, similar to the loose sand but with more mica, cemented by calcium carbonate and gypsum. The sand consists of quartz, felspars, calcite, biotite, muscovite, and amphibole.

**121. Sand specimen, 8½ miles from Camp xciii (29. D 4).**

Light brown sand with much mica. The bulk of the sand is between ·2 mm. and ·05 mm. in diameter.

Of the heavy minerals, biotite, muscovite, and green amphibole are abundant; sphene, garnet, epidote, and zircon are common. There are many composite grains.

**122. Coarse sand from old river-bed, 7½ miles NW. of L.A. site, Lou-lan (29. D 3).**

Fine light brown sand with much mica; a few large grains reach 2 mm. in diameter.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 80 % | 8 % | 4 % | 8 % |

Biotite, muscovite, and green amphibole are abundant in the heavy crop. A few grains of angular, green spinel were seen.

The large grains are generally fine-grained and indeterminate, but quartz and turbid felspar were identified.

**123. Coarse sand from two miles to NE. of L.A. site, Lou-lan (29. D 3).**

A multicoloured sand with subangular to well-rounded grains ranging up to 5 mm., with concretions and aggregates of the same size.

| | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|
| Mechanical analysis: | Few grains only. | 6 % | 94 % |

All the grains smaller than ·4 mm. are gypsum, and there are no simple heavy minerals. Among the larger grains are grey limestone containing brown mud, quartz, felspar, fine-grained gypsum, and compound grains. The aggregates consist of subangular quartz, orthoclase, green amphibole, rounded biotite, and muscovite, all cemented together by calcium carbonate.

**124. Soil from between Yārdangs, four miles SE. of Fort L.E., Lou-lan (29. D 3).**

A mixture of a well-rounded multicoloured sand ranging up to 2 mm. with irregular aggregates up to 4 mm. in size, and gypsum crystals and concretions up to 5 mm. The grains of the heavy crop are mostly opaque, but on crushing they reveal the presence of abundant garnet with some green amphibole and epidote. There are well-rounded grains of limestone, quartz, turbid orthoclase, microcline, and plagioclase, and gypsum concretions as well as fine-grained composite grains.

The aggregates consist of grains of quartz, orthoclase, plagioclase, muscovite, fresh and altered biotite, and green amphibole cemented by gypsum. There is little calcium carbonate, and the grains range from ·1 mm. downwards in diameter.

**125. Sand specimen from foot of dune, 4′, six miles NW. of Camp xcv, Lop Desert (29. D 3).**

A multicoloured sand, with grains ranging up to 1·5 mm. and some mica.

| | < ·2 mm. | ·2–·4 mm. | ·4–·7 mm. | > ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 32 % | 5 % | 27 % | 36 % |

Biotite and green amphibole are abundant and muscovite is common in the heavy minerals. The larger grains are well rounded and include, in addition to the many composite grains, quartz, red felspar, and limestone.

**126. Sand from Camp ccxxxix a, near edge of 'shōr' area (32. A 3).**

Fine light grey powder, smaller than ·2 mm., with crystals of gypsum up to 2 mm., and aggregates and rounded dark grey grains up to 3 mm. The dark grey grains are fine-grained and indeterminate. The aggregates are grains of the powder cemented by gypsum. The powder itself contains little calcium carbonate, but abundant gypsum and some salt. The heavy crop consists mainly of biotite, muscovite, and green amphibole.

**127. Sand from Camp ccxl a, NE. of Chainut-köl (29. D 4).**

Fine light grey powder with grains less than ·2 mm., and with irregular aggregates up to 10 mm. long and gypsum crystals.

The gypsum crystals contain so much of the powder as to be quite opaque, and the aggregates consist of the powder cemented by gypsum. Of the heavy minerals, biotite and green amphibole are abundant and apatite is common.

**128. Sand, thirteen miles SW. of Camp ccxxxviii a, E. of Āltmish-bulak (32. B 3).**

Fine light grey powder, less than ·2 mm. in diameter, with aggregates and gypsum concretions up to 5 mm. and well-rounded grains up to 3 mm.

The aggregates consist of grains of the powder cemented by gypsum. The large grains include turbid felspar, and quartz with many composite grains. Colourless and green amphiboles are abundant. Of the heavy minerals, biotite and muscovite are common. Gypsum is very abundant in the fine powder, and there is some salt.

**129. Soil with gypsum and 'shōr', eight miles SE. of Camp ciii, Lop Desert (32. B 3).**

Fine light grey powder less than ·2 mm., with aggregates up to 10 mm., corroded gypsum crystals up to 30 mm. long, and well-rounded grains from ·5 mm. to 5 mm. in diameter.

The powder contains a little calcium carbonate, abundant gypsum, and some salt, and green amphibole is abundant in the heavy crop.

There is quartz, in addition to composite grains, among the large grains.

**130. Drift-sand on Sai of Kuruk-tāgh, 12½ miles E. of Camp ciii, Lop Desert (32. C 3).**

Coarse, multicoloured sand, with many well-rounded grains, ranging from ·7 mm. to 2 mm., very few grains less than ·7 mm. in diameter, and irregular gypsum concretions up to 5 mm.

There are no simple heavy minerals; most of the grains are fine grained and indeterminate, but there is a good deal of quartz, with some red felspar and fine-grained quartzite.

**131. Coarse sand from eroded Nullah, three miles SSE. of Camp civ, Lop Desert (32. C 3).**

Well-rounded, multicoloured sand, with grains ranging from 1 mm. to 4 mm. in diameter. Coloured grains are more numerous than colourless. The most abundant type is a fine-grained dark grey or purple grit. Quartz, quartzite, and gypsum concretions are common.

**132. Coarse sand from vegetation belt, five miles NNE. of Yantak-kuduk (35. A 4).**

Coarse, multicoloured sand, with the smaller grains well rounded and the larger generally subangular.

| | ·7 mm. | ·7–5 mm. |
|---|---|---|
| Mechanical analysis: | 2 % | 98 % |

The smaller grains are mainly composite, but there is some quartz, turbid felspar, and calcite. The larger grains are very varied, and include red granite (with turbid felspar), light green amphibole schist, fine-grained white limestone, fine-grained quartz and felspar rock, red and purple fine-grained rock containing much felspar (R.I. $<$ 1·536).

**133. Sand from ridge of dunes, 25′–30′, crossing terminal basin of Su-lo-ho, five miles from Camp cxii (35. C 4).**

Well-rounded, multicoloured sand, ranging up to 1·5 mm.

| | $<$ ·2 mm. | ·2–4 mm. | ·4–7 mm. | $>$ ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 1 % | 7 % | 39 % | 53 % |

Composite grains predominate. In the heavy crop pink garnet is abundant, and hypersthene, epidote, and green amphibole are common.

**134. Sand from hillock, 8′, in terminal basin of Su-lo-ho, nine miles E. of Bēsh-toghrak (35. B 4).**

Well-rounded, multicoloured sand, ranging up to 2 mm.

| | $<$ ·2 mm. | ·2–4 mm. | ·4–7 mm. | $>$ 7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 13 % | 20 % | 45 % | 22 % |

Composite grains are predominant and simple heavy minerals are scarce, but there are a few grains of green amphibole. Felspars are abundant.

**135. Sand from moist lagoon bottom of Su-lo-ho terminal basin, seven miles E. of Bēsh-toghrak (35. B 3).**

Well-rounded, light brown sand, with many coloured grains.

| | $<$ ·2 mm. | ·2–4 mm. | ·4–7 mm. | $>$ ·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 13 % | 40 % | 42 % | 5 % |

Light-coloured opaque grains form the bulk of the heavy crop, but green amphibole, magnetite, and garnet are common.

**136. Coarse gravel and sand overlying clay at foot of Sai, near N. edge of Mesa area, terminal basin of Su-lo-ho, fifteen miles E. of Bēsh-toghrak (35. C 4).**

Well-rounded, multicoloured sand, ranging up to 2 mm., with a large number of subangular pebbles ranging from 5 mm. to 15 mm.

| | ·2–4 mm. | ·4–7 mm. | ·7–2 mm. |
|---|---|---|---|
| Mechanical analysis: | 12 % | 36 % | 52 % |

There are no simple mineral grains in the heavy crop.

The pebbles include pink granite with turbid felspar, fine-grained brown grit, fine-grained light green amphibole + felspar rock, and rhyolite showing granophyric structure.

**137. Sandy stratum in clay ridge, 100′, fourteen miles E. of Bēsh-toghrak (35. C 4).**

Well-rounded sand with a good deal of light brown mud, which coats the grains and sometimes binds them into loosely cohering aggregates. The grains range in size between ·7 mm. and 3 mm., the bulk being from 1 mm. to 1·5 mm. in diameter.

The only simple mineral grains seen in the sand are quartz, felspar, and garnet; in the mud, quartz, felspar, mica, and calcite were identified.

**138. Sand from dune against west wall of Khara-khoto (45. C 1).**

Multicoloured sand, with the larger grains well rounded.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 34 % | 29 % | 36 % | 1 % |

The greater proportion of the grains are composite, but green amphibole, muscovite, and biotite are common in the heavy crop.

**139. Sand, about three miles NE. of Khara-khoto (45. C 1).**

Subangular, multicoloured sand, with grains ranging up to 3 mm. and with branching, tubular aggregates.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 9 % | 6 % | 8 % | 77 % |

Of the heavy minerals, green amphibole and biotite are abundant and glaucophane is noteworthy. There are many fine-grained composite grains. The aggregates contain quartz grains up to ·2 mm., mica up to ·6 mm., and much very fine material cemented by calcium carbonate.

**140. Sand specimen taken between tamarisk cones, four miles S. of Ārpishme (29. B 1).**

Multicoloured sand, with angular to rounded grains and many prominent red grains.

| | ·2–·4 mm. | ·4–·7 mm. | ·7–2 mm. |
|---|---|---|---|
| Mechanical analysis: | 3 % | 13 % | 84 % |

Magnetite is common in the heavy crop, which otherwise contains few simple mineral grains. Among the larger grains, subangular, turbid red orthoclase and subangular to angular quartz and quartzite are prominent. The remainder comprise a few limestone and many composite grains.

**141. Soil specimen of 'Kim' near S. end of Dasht-i-Lūtak Sīstān (wind-eroded surface of alluvial plateau) (Lūtak. 01).**

Brown sand, with a few subangular pebbles ranging from 3 mm. to 28 mm. in length.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 13 % | 45 % | 26 % | 16 % |

The pebbles consist of quartz and a grey chert-like rock.

The fine material contains much calcium carbonate and some gypsum. Of the heavy minerals, altered and unaltered biotite and green amphibole are common. There are many composite grains of all sizes.

**142. Drift-sand from top of dune above right bank of Kan-chou R., thirteen miles below Cheng-i (43. D 1).**

A variously coloured sand consisting of well-rounded and subangular grains up to 2 mm.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 60 % | 30 % | 7 % | 3 % |

The larger grains are mainly composite, with much quartz and some felspar.

Composite grains of high specific gravity also occur in association with green amphibole.

**143. Dune near Charchan R., Koirük-tokai (26. A 3).**

Variegated sand, with the larger grains well rounded and the smaller grains subangular.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 1 % | 42 % | 12 % | 45 % |

The larger grains are mainly quartz, with some felspar, but many semi-opaque composite grains are also present. There is much quartz in the smaller fraction and abundant felspar, while of the heavy minerals composite grains predominate, though green amphibole, biotite, and muscovite are common.

**144. Sand specimen, M. v., Mīrān site, Lop (29. B. 2).**

Light brown sand, with many coloured grains, mica, and subangular and rounded pebbles up to 12 mm.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 47 % | 12 % | 10 % | 31 % |

Among the pebbles and large grains are quartz, grey chert-like rock, mica-schist, and red granite.

The fine material contains calcium carbonate and gypsum, and among the heavier minerals altered and unaltered biotite is abundant as well as green amphibole.

**145. Sand specimen from low dune within belt of Yārdangs, two miles N. of dry river-bed, Girdī-chāh. R.R. 04. 1 (desert site S. of Sīstān oasis).**

| | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|
| Mechanical analysis: | 6 % | 54 % | 40 % |

There are very many composite grains, especially among the heavier minerals. Biotite and green amphibole are common.

**146. Sand from top of mound, Ko-ta-ch'üan-tzŭ (E. of Ying-p'an, Kansu; 42. A 1).**

Fine brown sand, with gypsum crystals up to 30 mm. long. The gypsum crystals are corroded and contain much mud.

| | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|
| Mechanical analysis: | 6 % | 14 % | 80 % |

There are many composite grains and much gypsum. Of the heavy minerals green amphibole and altered as well as unaltered biotite are common.

**147. Sand from bed of Indus river, at mouth of Hodar valley.**

A light grey sand, with many black grains and abundant coloured and colourless mica.

| | <·2 mm. | ·2–·4 mm. | ·4–·7 mm. | >·7 mm. |
|---|---|---|---|---|
| Mechanical analysis: | 17 % | 47 % | 27 % | 9 % |

The suite of heavy minerals is very interesting. Biotite and muscovite in subangular cleavage flakes predominate, but angular to subangular grains of quite clear hypersthene and augite are abundant. The hypersthene sometimes contains typical inclusions. Green amphibole and magnetite are common. Of the larger grains, some are composite, others simple; of the simple minerals, angular cleavage fragments of green amphibole are noteworthy.

One grain picked out by the magnet consists of serpentine (?) and magnetite. It resembles decomposed olivine.

The specimens, which were collected over a wide area, show considerable differences in their gross characters but a general similarity in their mineralogical composition, and it is not possible to draw any conclusions as to the original source of the material. Further, although composite grains form a large proportion of the specimens, they are very varied in character and no particular type can be assigned to any one area. An exception to this is shown by specimens 107 and 108 from south of Marāl-bāshi. In these sands, flakes of a dark brown rock occur, and an examination of the mechanical analysis shows that they could not have been deposited at the same time as the sand grains and that they are probably products of desquamation of the underlying rock. [See above, i. p. 86, as to the significance of this observation.—A. STEIN.]

Mechanical analyses also suggest in several other instances the admixture of material from two sources. For instance, in specimen 136 we find well-rounded grains ranging from ·2 mm. to 2 mm. mixed with subangular pebbles varying from 5 mm. to 15 mm. The small grains were no doubt wind-borne and deposited by that agency among the pebbles brought down by torrents from the mountains. Specimen 137 from the same locality, Bēsh-toghrak, also consists of two distinct fractions, viz. well-rounded grains from ·7 mm. to 3 mm. and a fine light brown mud. This specimen occurs as a 'stratum in clay', and the grains represent a temporary influx during the continuous deposition of the clay. Another type is represented by specimens 126, 128, 129, and 144, in which well-rounded grains ranging from ·5 mm. to 3 mm. are mixed with fine powder less than ·2 mm. in diameter containing abundant gypsum and some salt.

A further type in which the two well-defined fractions are somewhat similar in character is represented by specimens 117, 118, 125, and 143. Here, subangular to rounded grains ranging up to ·4 mm. are mixed with grains from ·7 mm. to 2 mm. in diameter.

A study of the occurrences of the heavy minerals does not yield much information. Green amphibole, the micas, and magnetite are prominent in the heavy crops from all localities, and only on rare occasions do other minerals become abundant, notably garnet in Nos. 113 and 133. Other minerals which are persistent in smaller amounts are apatite, epidote, hypersthene, sphene, tourmaline, zircon, and brown and colourless amphibole. The metamorphic minerals cyanite, staurolite, sillimanite, and chloritoid were noted only in the western half of the area, as also was augite, while andalusite, rutile, spinel, glaucophane, and diallage were rarely observed.

Quartz is of course always predominant, and there is invariably abundant orthoclase, with less microcline and still less plagioclase. Microcline is strikingly abundant in No. 112.

Haloes in biotite were observed in only two specimens (Nos. 112, 113), both from the Vāsh-shahri district.

Many measurements were made on quartz grains in order to determine the lowest limit of rounding by the agency of wind; the smallest grain to show anything like perfect rounding measured ·39 mm., and there were many with diameters between ·40 and ·45 mm.

## TABLE SHOWING DISTRIBUTION OF THE MINERALS IDENTIFIED IN THE SANDS

The numbers refer to the samples described in the preceding pages.

| | Quartz | Orthoclase | Microcline | Plagioclase | Biotite | Chlorite | Muscovite | Calcite | Gypsum | Salt | Andalusite | Apatite | Chloritoid | Cyanite | Epidote | Garnet | Hypersthene | Magnetite | Rutile | Staurolite | Sillimanite | Sphene | Spinel | Tourmaline | Zircon | Amphiboles colourless | ″ light green | ″ dark green | ″ brown | ″ Glaucophane | Augite | ″ Diallage | Dolomite |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | + | + | + | + | + | + | + | + | · | + | · | + | · | · | + | + | · | · | · | · | · | · | · | + | · | + | + | + | · | + | · | · | + |
| 102 | + | + | + | + | + | + | + | + | · | · | · | + | · | + | + | + | + | + | + | + | · | + | · | + | + | · | + | + | + | · | + | · | · |
| 103 | + | + | + | + | + | · | + | + | · | · | + | + | · | + | + | + | · | + | · | + | · | + | · | + | + | + | · | + | · | · | + | · | · |
| 104 | + | + | + | + | + | + | + | + | · | · | · | + | · | + | + | + | · | + | · | + | · | · | · | + | + | + | + | + | · | · | · | · | · |
| 105 | + | + | + | + | + | + | + | + | · | · | · | · | · | · | + | + | + | + | · | + | · | + | · | + | + | + | + | + | + | · | + | · | · |
| 106 | + | + | + | + | + | + | + | + | · | · | · | + | · | · | + | + | · | + | · | · | · | · | · | + | + | · | · | + | · | · | · | · | · |
| 107 | + | + | + | + | + | · | + | + | · | · | · | + | · | + | + | + | · | + | · | · | · | · | · | + | + | + | + | + | + | · | · | · | · |
| 108 | + | + | · | + | + | + | + | + | · | · | · | + | · | + | + | + | + | + | + | + | + | + | · | + | + | · | + | + | + | · | + | · | · |
| 109 | + | + | + | + | + | · | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | + | · | + | + | · | · | · | · | · |
| 110 | + | + | · | + | + | + | + | + | · | · | · | + | · | · | + | + | · | + | + | · | + | + | · | + | + | + | + | + | · | · | · | · | · |
| 111 | + | + | + | + | + | + | + | + | · | · | · | · | · | · | + | + | · | + | + | · | + | + | · | + | + | + | + | + | · | · | · | · | · |
| 112 | + | + | + | + | + | + | + | + | · | · | · | + | + | + | + | + | + | + | + | + | · | + | + | + | + | + | + | + | + | · | · | · | · |
| 113 | + | + | + | + | + | · | + | + | · | · | · | · | + | + | + | + | + | + | · | + | + | + | · | + | + | + | + | + | · | · | + | + | · |
| 114 | + | + | + | + | · | · | + | + | · | · | + | · | + | + | + | + | + | + | + | · | · | · | · | + | · | + | + | + | + | · | · | · | · |
| 115 | + | + | + | + | + | + | + | + | · | · | · | + | · | + | · | + | + | + | · | + | · | + | · | + | + | + | + | + | + | · | · | · | · |
| 116 | + | + | + | + | + | + | + | + | · | · | · | + | + | · | + | + | + | + | · | + | + | · | · | + | + | + | + | + | · | · | · | · | · |
| 117 | + | + | + | + | + | + | + | + | · | · | · | · | · | · | + | + | · | + | · | · | · | · | · | · | · | + | + | + | · | · | · | + | · |
| 118 | + | + | + | + | + | + | + | + | · | · | · | + | · | + | + | + | · | + | + | · | · | · | · | + | + | + | + | + | · | · | · | · | · |
| 119 | + | + | + | + | + | + | + | + | + | · | · | · | · | · | + | + | · | · | · | · | · | + | · | + | + | + | + | + | + | · | · | · | · |
| 120 | + | + | + | + | + | + | + | + | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | + | + | · | · | · | · | · |
| 121 | + | + | + | · | + | + | + | + | · | · | · | + | + | + | + | + | · | + | + | · | + | + | · | + | + | + | + | + | · | · | · | · | · |
| 122 | + | + | + | + | + | + | + | + | · | · | · | · | · | + | + | + | · | + | + | · | · | + | + | + | + | + | + | + | + | · | + | · | · |
| 123 | + | + | · | · | + | · | + | + | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | + | · | · | · | · | · |
| 124 | + | + | + | + | + | + | + | + | + | · | · | · | · | · | + | + | · | · | · | · | · | · | · | · | · | · | + | + | + | · | · | · | · |
| 125 | + | + | + | · | + | + | + | + | · | · | · | + | · | · | + | + | · | + | · | · | · | · | · | · | + | + | + | + | · | · | · | · | · |
| 126 | + | + | + | · | + | + | + | + | + | + | · | + | · | · | + | + | · | + | + | · | · | + | · | + | · | + | + | + | · | + | · | · | · |
| 127 | + | + | + | + | + | · | + | + | + | · | · | + | · | + | + | + | + | + | · | · | · | · | · | + | · | + | + | + | + | · | · | · | · |
| 128 | + | + | + | + | + | · | + | + | + | + | · | + | · | · | + | + | · | · | · | · | · | · | · | + | + | + | + | + | · | · | · | · | · |
| 129 | + | · | + | + | + | + | + | + | + | + | · | + | · | · | + | + | + | · | · | · | · | + | · | + | + | · | · | + | · | · | · | · | · |
| 130 | + | + | · | · | · | · | · | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| 131 | + | · | · | · | · | · | · | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| 132 | + | + | · | · | · | · | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| 133 | + | + | + | + | · | · | · | + | · | · | · | · | · | · | + | + | + | + | · | · | · | + | · | · | · | · | + | + | · | · | · | · | · |
| 134 | + | + | + | + | · | · | · | + | · | · | · | · | · | · | · | · | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| 135 | + | + | + | + | + | · | · | + | · | · | · | + | · | · | + | + | + | + | · | · | · | · | · | · | + | + | + | + | + | · | · | · | · |
| 136 | + | · | · | · | · | · | · | · | · | · | · | + | · | · | · | + | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| 137 | + | + | · | + | · | · | · | + | · | · | · | · | · | · | · | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| 138 | + | + | + | · | · | · | · | + | · | · | · | + | · | · | · | + | · | + | · | · | · | + | · | + | + | + | + | + | · | · | · | · | · |
| 139 | + | + | + | + | + | · | + | + | · | · | + | + | · | · | + | · | · | + | · | · | · | · | · | · | · | · | + | + | · | + | · | · | · |
| 140 | + | + | + | + | + | · | + | + | · | · | · | · | · | · | + | · | · | + | · | · | · | · | · | · | · | + | · | + | · | · | · | · | · |
| 141 | + | + | · | · | + | + | · | + | + | · | · | + | · | · | · | + | · | · | · | · | · | · | · | · | · | + | + | + | · | · | · | · | · |
| 142 | + | + | · | · | + | + | · | + | · | · | · | + | · | · | · | + | + | · | · | · | · | · | · | · | · | + | + | + | · | · | · | · | · |
| 143 | + | + | + | · | + | + | + | + | · | · | · | + | · | · | + | + | · | · | + | · | · | · | · | + | · | + | + | + | · | · | · | · | · |
| 144 | + | + | + | + | + | + | + | + | + | · | · | · | · | · | + | · | · | · | · | · | · | · | · | + | · | + | + | + | · | · | + | · | · |
| 145 | + | + | · | + | + | · | + | + | · | · | · | · | · | + | + | + | · | · | · | · | · | · | · | · | · | + | + | + | · | · | · | · | · |
| 146 | + | + | · | + | + | · | + | + | + | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | · | + | + | + | · | · | · | · | · |
| 147 | + | + | + | + | + | · | + | · | · | · | · | · | · | + | + | + | + | + | · | · | · | + | · | · | · | + | + | + | · | · | + | · | · |

## III. NOTES ON THE SHELLS BY D. W. F. BADEN-POWELL, M.A., B.Sc.

**S. 1. Maral-bāshi.** Found in dune three miles E. of C. xxvi.

Four specimens of a *Limnaea* which is intermediate to *L. auricularia*, Lin., and *L. peregra*, Muller, var. *intermedia*, Ferrusac in Lamarck, and one specimen intermediate to *L. palustris*, Muller, and *L. stagnalis*, Lin.

**S. 2. Lop Desert.** C. xciii (02–09).

Specimens of *Limnaea* also intermediate to *L. auricularia* and *L. peregra*.

**S. 3. Lop Desert.** Lou-lan, below L.D. ruin, 5 ft. (031).

Three specimens which belong to the *L. palustris–stagnalis* series, and one with an incomplete spire which may be definitely referred to *L. auricularia*, Lin.

**S. 4. Kuchā.** In sand from Yārdang, three miles SW. of C. cclxi a.

A broken shell of *L. auricularia*, Lin.

**S. 5. Konche-daryā**, C. ccxlix, two miles SE.

*Planorbis albus*, Muller, and Limnaea, of the same intermediate group as S. 1. The *Planorbis* is represented by a rich collection of shells all belonging to the same species. They resemble *P. issik-kulensis*, Clessin, but present more numerous exposed whorls than that species. A comparison with Clessin's shells in the British Museum Collection confirms this identification.

**S. 6. Konche-daryā**, one mile north of (01).

Three specimens of *Limnaea auricularis*, Lin. It may be observed that the spires are rather unusually elongated.

**S. 7. Sistān.** Desert site S. of Sistān oasis.

Three shells belonging to the *L. auricularia–peregra* group. The mouth is as broad as in *L. auricularia*, and in one example the spire is longer than in the two others.

All the freshwater Gasteropods just enumerated inhabit still or slowly running water, and are still found living in and about Turkestan and Kansu.

**S. 8. Khotan** (0195). Brought by Abbas from Khotan 'Tati'.

A single shell too abraded for identification. It belongs to the family Mitridae, and possibly to the genus *Latirus*.

**S. 9. Khotan**, Badr (0133).

A much-worn shell evidently belonging to the genus *Oliva*, and probably to the sub-genus *Carmione*. The shell is not only worn, but appears to have been ground down over the lip and the opposite part of the body whorl as if for suspension.

Neither this nor the preceding shell appears to be a derived fossil. Both might have been picked up from a tropical beach and transported by human agency.

## LIST OF LOCALITIES IN CHINESE TURKESTAN AND KANSU

| Sands. | Rock Specimens and Shells. | | |
|---|---|---|---|
| | | **Marāl-bāshi Region.** | |
| 102 | 1 | Marāl-bāshi. | |
| | 2, 23 | Chok-tāgh. | |
| 101 | 3 | Lāl-tāgh. | |
| | 4 | Bēl-tāgh. | |
| 103 | 5 | C. xxiv | Taklamakān desert S. of Marāl-bāshi. |
| 104 | | C. xxv | |
| 105 | (S. 1) | C. xxvi | |
| 106, 108, 109 | | C. xxvii | |
| 107 | | C. xxviii | |
| | | **Khotan Region.** | |
| | 6 | Mazār-tāgh, of Khotan. | |
| 110 | | Mazār-tāgh Fort. | |
| | (S. 8) (S. 9) | Khotan. | |
| | | **S. Edge of Taklamakan.** | |
| | 66, 67 | Kara-tāsh. | |
| | 68–70 | Imām-Jāfar-Sādik. | |
| 111 | | Niya site. | |
| 113, 114 | | Vāsh-shahri. | |
| 112 | | Yaka-toghrak (of Vāsh-shahri). | |
| 115 | | Yiilik. | |
| 116, 144 | | Mīran. | |
| 143 | | Koiruk-tokai. | |

| Sands. | Rock Specimens and Shells. | |
|---|---|---|
| | | **Camps in Lop Desert.** |
| 121 | (S. 2) | C. xciii. |
| 125 | | C. xcv. |
| | | C. ci. |
| 129, 130 | | C. ciii. |
| 131 | 7–11 | C. civ. |
| | (S. 3) | Lou-lan, L.D. ruin. |
| 117 | | Lou-lan, L.S. site. |
| 124 | | Lou-lan, Fort L.F. |
| 122, 123 | | Lou-lan, L.A. site. |
| 118 | 12 | Dry river-bed of Kuruk-daryā. |
| | | **E. of Lop Basin.** |
| | M. | Kum-kuduk, eight miles NW. of. |
| 133 | | Bēsh-toghrak. |
| 137 | | Su-lo-ho. |
| | | **Terminal Course of Etsin-gol R.** |
| 142 | | Chêng-i. |
| 146 | | Ka-ta-ciung-tzu (Ko-ta-ch'üan-tzŭ). |
| | 13–15 | Mao-mei. |
| 138, 139 | - | Khara-khoto. |

### Pei-shan Ranges.

| Sands. | Rock Specimens and Shells. | | |
|---|---|---|---|
| | 16 | Chin-êrh-ch'üan. | |
| | 17–19 | Ming-shui. | |
| | 20 | Pei-shan. | |
| | 21 | Mou-wu. | |
| | 22–27 | Lo-t'o-ch'üan. | |
| | 28 | Ta-shi-kou. | |
| | 29–31 | Yeh-ma-ching. | |
| | 32 | C. 219 | Pei-shan. |
| | 33 | C. 220 | |
| | 34, 35 | C. 212 | |
| | 61 | Nan-ch'üan. | |

### E. Tien-shan.

| Sands. | Rock Specimens and Shells. | |
|---|---|---|
| | 37–41 | Ümür-tagh. |
| | 42–43 | Bai T'ien-shan. |
| 132 | | Yār-khoto, Turfān. |

### Kuruk-tāgh.

| Sands. | Rock Specimens and Shells. | | |
|---|---|---|---|
| 128 | | C. ccxxxviii | Camps in Kuruk-tāgh. |
| 126 | | C. ccxxxix | |
| 127 | | C. ccxl | |
| | 44, 45, 45 a | C. ccxli | |

| Sands. | Rock Specimens and Shells. | | |
|---|---|---|---|
| 119, 120 | | C. ccxlviii | Konche-daryā. |
| | 46 (S. 5, 6) | C. ccxlix | |
| | 56 | Achchik-bulak. | |
| | 57 | Singer. | |
| | 40–5 | Kuruk-tāgh. | |
| | 47 | P'o-ch'êng-tzŭ. | |
| 140 | M. 58 | Arpishme. | |
| | M. 59 | Iltar-ghuch-bulak. | |
| | 61, 62 | Bakri-changche-bulak. | |
| | M. 63 | Yārdang-bulak. | |
| | 64, 65 | Āltmish-bulak. | |
| 118 | (S. 4) | C. cclxi a (Kuchā). | |
| 147 | | Indus river. | |

### Sistān.

| Sands. | Rock Specimens and Shells. | |
|---|---|---|
| 145 | (S. 7) | Desert sites S. of Sistān oasis. |
| 141 | | Dasht-i-Lutak. |

# APPENDIX P

## NOTE ON THE FRAGMENT OF A MANICHAEAN PARCHMENT

### MS. Kao. 0111, FROM KARA-KHŌJA

BY

W. LENTZ, Ph.D.

| *Phonetische Umschrift.* | *Übersetzung.* |
| --- | --- |
| tosu]m vuzuryōn | viertens die Großen, |
| k]ē poδiχšor uδ gōh dōrēnd ∘ uδ | die Ehrerweisung[1] und Rang besitzen; und |
| ponzum ōzōδōn kē poδiχšor uδ | fünftens die Adligen, die Ehrerweisung und |
| ōzōδē dōrēnd ∘ ∘ uš ēvēn uδ | Adligkeit besitzen. Und er hatte Vorhalle und |
| .]. . . būδ ku nuχust χuδ uβōγ | . . . , wo zuerst er selbst mit |
| o]mūstōn uδ frēstōγōn ōχēzēδ | den Betrübten und den Gesandten aufsteht |
| uδ ō homōγ ōχurōn poδ yok džōr | und allen Gästen[2] in einem Jahr |
| oβēsor mei uδ rōyēn frōz ōvurēδ | unaufhörlich[2] Wein und Butter herbeigebracht |
| uδ boχšēhēδ ∘ ko hosōr . . . . . | und geschenkt wird, wenn (als) zusammen . . . |
| murδōχmōn ē b . . [ | die . . . Menschen . . . |
| . . [ | . . . |
| *Rückseite über der Miniatur:* | |
| . . . | . . . |
| ōēšōn tis nē ōfurδ uδ p [ | von ihnen nichts geschaffen wurde und |

*Lesungen*: Die Ergänzungen Z. 1, 2 u. 6 sicher. Am Anfang von Z. 5 fehlt ein Buchstabe, dann folgt wahrscheinlich א und sicher ן. Am Ende von Z. 9 ist או sicher, dann folgen wohl ב und die Spuren von zwei Buchstaben. Am Schluß des erhaltenen Teils von Z. 10 steht ב, dann ו oder י und ב. Auf Zeile 11 ist von den Buchstabenspuren nur א am Anfang sicher zu deuten. Vokalisierung nach Andreas' *Grundsätzen*.

*Sprache*: Das Stück ist im Südwestdialekt abgefaßt. Kennzeichen: כור, נבוסת, אואדיה, פנזום usw., daher auch רויין *Butter* für np. *rōyān*, das nordiranisches Lehnwort ist.

*Inhalt*: Das Stück ist die Beschreibung einer manichäischen Zeremonie, die vielleicht auf der Miniatur der andern Seite[3] bildlich dargestellt war. Die verschiedenen darbringenden Persönlichkeiten, von denen einige dort noch erhalten sind, sind nach Rangstufen aufgezählt. Die erste war offenbar der König, die beiden nächsten gehen aus Hāğīābādinschr. Z. 5–6 hervor, an diese schließen sich wie dort die Großen und die Adligen: שתלדאלאן ובלביתאן ווצלכאן ואזאתאן *die Fürsten und die Prinzen und die Großen und die Adligen*; vgl. E. Herzfeld, *Paikuli*, Bd. 1, S. 87, Berlin: D. Reimer, 1924.

Die אמוסתאן sind die *electi*; vgl. M 1, hrsg. v. F. W. K. Müller, *Abh. Berl. Akad.* 1912, Z. 364, 367 ff.

[1] Vgl. Bartholomae, *Zum altiran. Wörterbuch*, 1906, S. 64 unten—65 unten.

[2] Nach Andreas.

[3] See Pl. LXXVII.

# APPENDIX Q

## FRAGMENT OF A RUNIC TURKISH MANUSCRIPT

### KAO. 0107, FROM KARA-KHOJA

EDITED AND TRANSLATED BY

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THE finds made during Sir Aurel Stein's third expedition in Central Asia included amongst other things a small fragment of a paper manuscript containing writing in Turkish 'runes' (marked Kao. 0107; see Pl. CXXIV). The paper shows writing only on one side; but on the other side there are traces of drawings, among which are plainly seen one or two faces above a dress in red or with a red outline. Besides the left edge of a page, that is to say, only the ends of its lines (i), the paper contains, to the left of this, another, entire, page (ii), tolerably well preserved. The characters are unusually small compared with those in documents of a similar kind; hence the writing has become blurred in several places. It is further rendered indistinct by the fact that the manuscript has apparently been wetted, whereupon it has received some creases which cannot be smoothed out. This renders the reading very difficult and uncertain in many places.

In form the characters correspond with those of the other documents found in Eastern Turkestan, thus | for *š* is kept distinct from the vertical stroke | = $s^2$. At the top there seems to have been a heading in larger letters of which, however, only one character, a $d^2$, is well preserved and clear; the following character, the last of the line, is tolerably visible, but cannot be interpreted with certainty (it resembles a *q* most of all; or has it originally been a *z* the right part of which may have disappeared ?). The rest of the heading has entirely disappeared.

In its present state the document contains fifteen lines, the first of which has, however, been lost except for the last character in p. ii. Whether there have been some additional lines at the bottom cannot be ascertained, the paper having been torn off here. In the left-hand page (i), preserved only in part, the first ten lines have been written in red ink, the last five in black; in the better preserved page to the right (ii), the first ten lines are in black ink, the last five in red. If the black and the red part of the two pages have at first been of equal size they must have contained twenty lines each. The document is quite plainly of Manichaean origin (cp. *nuγošäk* in line 14 and possibly in line 2), and seems to have contained a fragment of a legend or tale concerning the conversion to Manichaeism of one Prince Singqur.

I now give the text in transcription so far as it is readable. I add a small $^1$ to the letters which are only used with back vowels, and a small $^2$ to those only used with front vowels. Square brackets [ ] denote characters that are missing or so much blurred that the reading of them is, in fact, hypothetical. In round brackets I have placed the designation of sounds which are not expressed in the manuscript but must be supplied in the transcription. The text is accompanied by an interlinear translation, the context being too uncertain to admit of any other form.

| (i) | | (ii) |
|---|---|---|
| | | - - ] *d*[ˀ.] |
| | 1 | - - - - ] *z* |
| | 2 | *:n(u?)]γoš[(ä)k]:(a)lp : $s^1$ïñ*<br>auditor. (proper |
| | 3 | *qu]r : tigin : t(ä)ñr(i)*<br>name) prince my God (i.e. my Lord) |
| ] *$t^2$m* [.] | 4 | *m: [$q t^1$ .] $d^1$ $n^1$ : qutïñ*<br>(pr. name?) his Majesty |
| ] *$r^1$ : s(a)ñun*:[.]<br>(title) | 5 | *a : ötünti : y(a)lb(a)r*<br>begged (and) implored : |
| ]: *ki* [.] *ma* | 6 | *ïï : m(ä)n(i)ñ : äbimä :*<br>'for my house |
| ]$r^1$ [.] *$n^1$ : i* [.] | 7 | *bir : nom : [.]ü$l^2$[.] : bi*<br>one law ? let |
| *s(a)]ñun : ïn¹*<br>(title) | 8 | *tizün: $t^2$ (i)p : m(ä)n*[.<br>him write,' saying. me (?) |
| ] *ïn(a)l : $t^1$(a)$r^1$*<br>(pr. name) | 9 | *it²i* : [. .] : [*y*](*a*)*buz : özüm*<br>? wretched? myself |
| ]: [.] *$r^1$ γ $n^1$* | 10 | *: uzs*[(*u*)*z*?] : *puγus :* (*a*)*lp*<br>unskilful (?) ? (pr. |
| ] [.] : (*a*)*pa :*<br>(pr. name?) | 11 | *s²ïñqur : tigin : üčü*<br>name) prince for |
| ] *sil(i)γ*<br>pure | 12 | *n : bit[i]d(i)m : q(a)m(u)γ : b(a)γ*<br>I wrote. all his |
| ] *üg*[.]*us¹* | 13 | *rïn : birlä : ögr(ä)nč*<br>? with, his doctrine (?) |
| ] *pk : ïn(a)l*<br>(pr. name) | 14 | *in* :[.] *ip : n(u?)γoš(ä)k:*[. .<br>? auditor |
| ] *b¹*[. .] *ši* [:] *s²* | 15 | *inčä : t²*[.] - -<br>thus (?) |

*Notes to page (i).*

Nothing can be made of the final words of this. I merely point out the form *sañun*, Chinese *chiang chün* (將 軍), corresponding with the form in the Yenissei inscriptions, while the Orkhon inscriptions render this title by *säñün*. Further, in l. 12 the form *siliγ*, presumably the same word which has this form in Qutadγu Bilig, while the inscriptions have *silik*, 'clean'. In ll. 9 and 14 we have the personal name *Ïnal*, in the first place followed by the title *tar*[*qan*].

*Notes to page (ii).*

l. 2. *n(u?)γoš(ä)k* is a well-known Manichaean expression of Sogdian origin, meaning 'auditor', 'hearer'.

l. 4. [*$q t^1$* .] *$d^1$ $n^1$* is probably a proper name.

l. 7. The word succeeding *nom* one would be inclined to read *törü*, but this interpretation does not seem possible.

ll. 9–10 are very doubtful.

# APPENDIX R

## NOTES ON THE TIBETAN MANUSCRIPTS ILLUSTRATED IN PLATES CXXX–CXXXIII

BY

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### PLATE CXXX.

**1. M. xiv. 3.** (Wooden slip: *c.* 9 × 2 cm.: l. 1 of ordinary *Dbu-can* writing, partly erased.)

A 'visiting card' or identification ticket of an officer.

[1] ༄ : tshar · dp[o]n ǀ Paṅ · Kuḥ : tshan · ǀ

[2] (a trace) phra (?)

'Paṅ Kuḥ-tshan, head of a *tshar*.'

A *tshar* is a subdivision of a regiment or district (*J.R.A.S.*, 1927, p. 829).

**2. M. Tagh. 083.** (Wooden slip, apparently a pen, *c.* 17·5 × ·75 cm.; the coiled string served perhaps for a grip.)

**3. M. xiv. 5.** (Wooden slip: *c.* 1 × 1·3 cm.; cut away (for use as a pen?) and the writing partly erased.) Similar to No. 1 above.

. . . : cho · lṅa : thun : gyi : rtse ǀ ni ǀ my[el · tse].

*Reverse*: gs · la ǀ mtshan : na : my[i] · blta ǀ ñ[i]n : na · dud.

'Fifteen-watch summit (tower?): watchman . . . to. In the night not to be seen. In the day . . .'

**4. M. xiv. 1.** (Wooden slip, complete, *c.* 8·5 × 1·6 cm.; l. 1 of writing, partly erased.)

Kre ǀ kr[i]ḥ. *Reverse*: ༄ ǀ yu[l] · rigs.

*Kre-kriḥ* is, no doubt, a name. The expression *yul-rigs* (*zigs* elsewhere), 'land-knower (seer)', will mean a 'surveyor' or 'spy'.

**5. M. xiv. 2.** (Wooden slip, complete, *c.* 9 × 1·6 cm.; string-hole at right: ordinary *Dbu-can* script.)

༄ : Lha · goṅ ǀ

A name.

**6. M. xiv. 4.** (Wooden slip, complete, *c.* 7 × 2 cm.; ordinary *Dbu-can* script.)

༄ Žar · cuṅ ǀ

A name.

**7. M. Tagh. 0281.** (Wooden slip, fragmentary, *c.* 11 × 2 cm.; the object of the string wrapping not obvious; ordinary *Dbu-can* script.)

༄ ǁ khums · śig · ǁ bde · bar · s[n]o (*for* son) [ste]

*Reverse*: brtsis · kyi · phyi · mo · dgu · dgu · brgyad · [bgug] (boug ?)

'To be noted (or carried out). Going away happily.'

*Reverse*: 'After the counting summon nine, nine, eight.'

**8. M. Tagh. 0616.** (Wooden slip, complete, *c.* 13 × 1·5 cm.; ordinary *Dbu-can* script, partly erased.)

༄ ǁ Yel · rab · gyi · sde ǀ Lo · [L]egs · sroṅ ǀ

'Lo Legs-sroṅ of the Yel-rab regiment (or district).'

**9. M. Tagh. 0522.** (Wooden slip, complete, *c.* 13 × 2 cm.; ll. 2 of ordinary *Dbu-can* script, partly erased.)

[1] ༄ ǀ : ǀ Ñam · ru · pagi · rtse · rt[i]ṅ · [n]on · gyi · Śo

[2] rtsaṅ · ḥgram · gyi · so · pa ǀ . . .

'The soldier . . . of Šo-rtsañ-ḥgram of the Ñam-ru-pagi-rtse-rtiṅ-non regiment (or district).'
*Rtiṅ-non* seems to occur elsewhere, and the meaning 'rearguard' may be suspected.

**10. M. Tagh. 0332.** (Wooden slip, nearly complete, *c.* 10 × 1·75 cm.; l. 1 of ordinary *Dbu-can* script.)
⊸ ‖ Dags : po : [s]d[e] ꞉ s[o] : Khlu : rton :

'The soldier Khlu-rton of the Dags-po regiment (or district).'

**11. M. Tagh. 0524.** (Wooden slip, broken away at left, *c.* 6 × 1 cm.; l. 1 of ordinary *Dbu-can* script.)
taha ꞉ gyu · m[o] : tshugs ꞉ ñ[i]s ꞉ par : ban.

Fragmentary and unintelligible.

**12. M. Tagh. 0383.** (Wooden slip, complete, *c.* 12 × 2 cm.; l. 1 of ordinary *Dbu-can* script.)
⊸ ꞉ . ꞉ Ñam · ru · pag · ḥbyi (*for* gyi ?) · so

'Soldier . . . of the Ñam-ru-pag [regiment].'

**13. M. Tagh. 0382.** (Wooden slip, complete (?), *c.* 14 × 1·75 cm.; ll. 2 of ordinary *Dbu-can* script.)
[1] ⊸ ꞉ Khri · goms · gyi · sde · Hol · god · byañ · bza[ñ]s
[2] ‖ . . . yañ · g[ch]ogs · te · so
*Reverse*: . . . l · myi · bthus ‖

'Of the Khri-goms regiment (or district), Ḥol-god-byañ-bzañ (a regiment ?) . . also being assembled, the soldier . . . . . did not join.' *Khri-goms* may be an error for *Khri-boms*, on which see *J.R.A.S.*, 1927, p. 823.

**14. M. Tagh. 0343.** (Wooden slip, complete, *c.* 13 × 2 cm.; l. 1 of ordinary *Dbu-can* script.)
⊸ ꞉ : ꞉ Mañ · khar · sde · lä ꞉

'To the Mañ-khar regiment (district).'

**15. M. Tagh. 0564.** (Wooden slip, partly cut away (for a tally ?), *c.* 14 × 2 cm.; l. 1 of ordinary *Dbu-can* script.)
[1] ⊸ ‖ Mñaḥ · ris · byin · kyi
[2] rtse

A place-name, 'Peak (tower ?) of Mñaḥ-ris-byin' (two frontiers).

**16. M. Tagh. 0290.** (Wooden slip, incomplete, *c.* 6 × 2 cm.; ll. 3 of ordinary *Dbu-can* writing, partly erased.)
[1] ⊸ : ꞉ mkhyen chun (rgyañ ?) · skyuñ · -e
[2] sbe(se ?) · de · glo · ba · rab · tu · dga · žiñ · m . .
[3] sbyen · ꞉ zer · na · g- · dor · snan
*Reverse*: [1] ⊸ · ꞉ jo · co · Skyi · bžer · [la]
[2] sñun · gsol · žiñ · mchis · so
[3] [r] · du · gsol · lo · de · ḥi · slad

The document begins on the reverse: it is a letter addressed to Jo-co (Cojhbo or magistrate) Skyi-bžer, and begins with the usual inquiries after his health (*sñun-gsol*). The writer is very glad of something (*glo-ba-rab-tu-dga*), which, however, is not determinable from the fragment.

**17. M. Tagh. 0356.** (Wooden slip, fragmentary at right, *c.* 16 × 2·5 cm.; ll. 2 of ordinary *Dbu-can* script, partly erased.)
[1] ⊸ ꞉ : ꞉ [jo] · co · Ḥbliḥ (?) · [sgra] · la ‖ Rmañ · La · sky[e]s · ky[i] · mch[i]d · *gsol · ba.*
[2] sku · rin · po · ce · la · sñun · tug · gis · ḥo · ma · brgyal · te · cha
*Reverse*: [1] ñan · pa · smon · pa · bžin · te · glo · baḥ · dgaḥ · bdag · g . . .
[2] dañ · yañ · žal · mjal · te · glo · baḥ · gchags ꞉ sña · slad · kyi

'To Jo-co (magistrate) Ḥbliḥ-sgra, letter-petition of Rmañ L[h]a-skyes. That in your jewel-body there is no trouble from ill health . . . . according to your humble servant's prayer, he is glad. I am anxious at heart to meet you face to face. From [your] former and later [letters] . . .

**18. M. Tagh. 0280.** (Wooden slip, chipped, *c.* 13 × 1·5 cm.; l. 1 of ordinary *Dbu-can* script.)

⊸ ꞉ : ꞉ Yar · skyeñ · gi · s[d]e · spun · Drug · legs

'Brother Drug-legs of the Yarkand regiment (district).'

**19. M. Tagh. 0610.** (Wooden slip, cut away at left, *c.* 22 × 2 cm.; ll. 2 of neat *Dbu-med* writing, with interlinear additions in a different, smaller hand.)
[1] . . . [b]žin : du : mchir : ma : bthub : laḥ ‖ chad · kyi : tus · kar · bo[s] · žo(i ?)ñ : ꞉ rkog

[2] . . . er · ni · myi · gnaño ॥ lo · phyed · tshun · chad · kyis · bdzer

*Interlinear*: dkoḥ · ñal · śe · dag · byas · pas ၊ de · ltar · myi · bde.

*Reverse*: a few *akṣaras* of two erased lines.

'If you are not able to come according to . . . at the appointed time . . . . to . . . is not permitted. As far as half a year . . .

'Having been so lazy, in that way it is not good.'

**20. M. Tagh. 0205.** (Wooden slip, fragmentary, *c.* 7 × 2·5 cm.; top part of a double tablet, with cavity for a clay seal.)

*Obverse*: only the initial auspicious mark before the name of the addressee.

*Reverse*: [1] ॥ Nan · rje · po · Ḥp(g ?)rul . . .

[2] [bd]ag · ṅan · pa · [śu]gs · [dm].

[3] bzaṅ · yaṅ · sñun · slar . .

'To the minister of the interior Ḥphrul . . . your humble servant . . . strength . . . health. Next . . .'

**21. M. Tagh. 0256.** (Wooden slip, apparently cut away to form a pen, *c.* 25 × 1·5 cm.; l. 1 of scrawled writing, perhaps a modern *Dbu-med*.)

**22. M. Tagh. 0617.** (Wooden slip, notched for the purpose of a tally: *c.* 24 × 2 cm.)

*Obverse*: some obscured *akṣaras*.

*Reverse*: blon ၊ Mdo ၊ bzaṅ · [la]

'To Councillor Mdo-bzaṅ.'

**23. M. Tagh. 0238.** (Wooden slip, with hole for a string, *c.* 10 × 2·5 cm.; l. 1 of ordinary *Dbu-can* script, partly erased.)

*Obverse*: . . . [s] · lo · dres (res ?) · pa · bcu

*Reverse*: ॥ Li · Seṅ · ge ॥

*Obverse*: 'Years added together (?) ten.'

*Reverse*: 'The Khotani Seṅ-ge.'

**24. Khad. 032.** (Wooden slip, apparently complete, *c.* 18 × 2 cm.; l. 1 of rather mannerized *Dbu-can* script, partly erased.)

၊ : ri · skyal . ba · tsa ၊ rtiṅ · non · [tshun · chad ·] bcu · bdun · tsam · mchis

'Mountain escort . . . As far as rearguard, about seventeen came.'

**25. M. Tagh. 0344.** (Wooden slip, complete, *c.* 9·5 × 2 cm.; ll. 2 of ordinary *Dbu-can* script, much erased.)

[1] ၊ : ၊ Li : Byi : deḥi : nas : bre . . -ca(-tsa ?)

[2] bch[u] · gse (gol ?) : chad : . . s[t]e

'The Khotani Byi-de's *bre* of barley . . ten . . .'

**26. Khad. 037.** (Wooden slip, mainly intact, *c.* 20·5 × 2 cm.; ll. 3 of rather cursive *Dbu-can* script, partly erased.)

[1] ၊ ၊ Śiṅ · śan · nas · chas · phan · chad · dro · dgoṅs · lta · [bu] · chu · mgur . [dma · ṅ] . . . . . [sca]

[2] glo · snar · thub · par · thob · la · mtshan · yaṅ · rkaṅ · ra · dmadu · gzu[g]s · ñin . . . . . .

[3] par · bcad · de · so · sas (sñas ?) · kyis · bcaḥ · ba · daṅ · dgras · [z]in · [slebs ?] . . .

*Reverse*: Three lines for the most part erased, leaving visible a few scattered *akṣaras* (l. 3: *sres · tshun · chad · dpuṅ · sl . . . par · mchi*).

The letter relates to a journey from Śiṅ-śan (Mazār Tāgh ?), of what was done in the night and by day, and of something being seized by the enemy.

**27. M. Tagh. 0252.** (Wooden slip, fragmentary, *c.* 8 × 2·5 cm.; ll. 2 of ordinary *Dbu-can* script.)

[1] ॥ Dge · bzaṅ · gis · draṅs . . .

[2] yaṅ

'Conveyed by Dge · bzaṅ.'

**28. Khad. 034.** (Wooden slip, partly broken away, *c.* 22·5 × 3 cm.; ll. 3 of ordinary *Dbu-can* script, partly erased.)

[1] . . [s] . . . la ॥ Legs · kyi · [m]chid · gsol · baḥ ၊ bar · du · sug[s · pad] . .

[2] mchid · yige · las · sñun · gsol · źiṅ · mchis · na · ၊ ḥdrul · baḥi · ḥdabs

[3] stsal · bar · ci · gnaṅ ı bdag · ṅan · pas · rṅo · thog · paḥi · žoḥ · [śa · ḥ] . .

*Reverse*: [1] cig · kyaṅ · ma · mchis · par · brtag · tu · rgyags · brtsaṅs · pa · klo · ba · rab · tu · dgaḥ

[2] žiṅ · mchis · ḥon · [c]o · [j]o . [lta · ci] g . . . ı da · slan · cad · gyaṅ · brtag tu · -igs

[3] . . . . . slan · gyis · ḥo · myi · brgyal · bar · rta(g) · t[u] · [smon] · lam · gsol . . .

'To . . . letter-petition of Legs. As meanwhile I am anxious to know by letter of your health, please to send a missive. Your humble servant, although the possible contribution has not come, is very glad that provisions have been constantly sent. Hereafter also he ever prays that [you] be free from trouble.'

## PLATE CXXXI.

**1. K. K. v. b. 012. b.** (Paper: 1 fol., fragmentary at left, *c.* 27·5 × 10 cm.; ll. 8 of elegant *Dbu-med* script. Reverse, ll. 8 of the same.)

Apparently a commentary upon some work relating to a vow and a tantric ceremony.

l. 1. ı ḥdir · žes · pa · la · sogs · las · ni · de · lta · buḥi · bsad · pa · de · ñid · ḥgal · ba · med · par · luṅ · gis · bsgrub · paḥo ॥

l. 2. ı *nam · khaḥi · dbyiṅs · kyaṅ* (= *ākāśa-dhātu, api*) · žes · pa · la · sogs . . .

l. 5. ı ḥkhor · loḥi · dkyil · ḥkhor · ni · rdo · rje · ḥchaṅ · chen · po (= *saṃsāra, cakra, vajra-dhara-mahā*).

**2. M. Tagh. 0430.** (Paper: 1 fol., fragmentary at left, *c.* 21 × 19·5 cm.; ll. 17 of normal epistolary *Dbu-can* script.)

The text is a letter, as follows:

[1] . . laḥ ı ı Gsas ı sroṅ ı gyis ı mchid : gsol ı ba : thugs ı bde ı

[2] . . [m]chid ı yig ı [gi]s ı sñun ı gsol ı žiṅ ı mchis ı na ı ḥdrul ı ba ı las

[3] . . par ı ci ı gnaṅ ı bdag ı ṅan ı yaṅ ı sug ı las ı ko : śiṅ ı dpyad ı

[4] . . ı mchis ı bdag ı pyid ı zla ı ḥbriṅ ı po : la ı mchis ı de : deḥi : bar ı du ı ni ı

[5] . . Ḥp[h]an ı to ı re ı Khrom ı zigs ı dag ı la ı yaṅ ı noṅ ı žo ı mchis ı

[6] . . -u ı dvag (Rbeg ?) ı ḥa ı yaṅ ı noṅ : žo ı ma : mchis ı rma ı sbyin ı gi : rta ı bro . . .

[7] . . [s] ı ma ı mchis ı Ko ı bdag : ni (?) ı smas ı pa ı las : sos : śiṅ : mchis ı mchi

[8] . . l : pha : Lha : zigs ı sku : skyol ı du ı mchis ı de ı rmas ı na : [thod] ı yul ı nva ı nod (noṅ ?)

[9] . . [m]chis ı yul ı du : yaṅ ı rñiṅ ı chen : mchi ı ba ı la : bdag : gis : jo : cho : daṅ ı

[10] . . žiṅ ı mchis ı mchid ı yigi : ḥdis ı sñun ı du ı gsold ı slan ı chad ı thugs

[11] . . žal : myur ı du ı mthoṅ ı bar ı smon ॥ Khri : sña ı la ı Gsas ı sroṅ ı gi

[12] . . bde · [ı ḥam] · myi · dbe (*sic*) ı yigi : las ı sñun ı gsol ı ži(ṅ) : mchis ı mchid ı yigi

[13] . . slan : chad ı thugs : rtag ı tu : bde . . . . . . [gsol] ı bar ı smon ॥

[14] . . kyaṅ[: mjald · te] ı [gnad . . skyu . bžin · daṅ ı (?)] sṅ[o]n · chad · [s]kya : lugs · chi ı [?]mchis : pa : bžin

[15] . . skyald · paḥi · zla · la · brdzaṅ · ṅo ı ı khyi · gu · (ži) [1] · gñis · mchis · pa · las · gaṅ · che · žiṅ · bzaṅ · ba · d—

[16] . . ḥtsal · bar · dom · ste · gchig · ı Ñam · ru · pag · ḥam · so · la · ḥdrul · bzaṅ · po · brtags · pa · žig

[17] . . daṅ · mjug · pa · ma · [s]ad · par · skur · chig ॥

'To . . . , letter-petition of Gsas-sroṅ. Happy . . . by letter inquiring of your health. By a missive . . . favour. I, your humble servant, am attentively engaged in the work.

I came in the middle spring month. Up till then . . Hphan-to-re and Khrom-zigs were ill. Rbeg-ha is not ill. Rma-sbyin's horse (or 'The wounded horse') disease . . . . is not. I myself have recovered from my wound. . . . Lha-zigs has been in bodily peril (?) and has received a wound in the region of the head (?).

I am . . . . . . . . my lord: this letter is to inquire concerning your health. Henceforward I pray . . . happy and soon to see your face.

To Khri-sña, . . . . . of Gsas-sroṅ. I am writing to inquire of your health, whether you are happy or not. By letter . . . . For the future I pray that you may be at all times happy . . . also come, according to . . . and the previous usage of the harvest . . . should be sent in the month of dispatch. Of the two puppies whichever is the larger and better . . . select for sending. Send to Ñam-ru-pag or the soldier, with a good big document as a mark . . . and the tail not . . .'

[1] Crossed through: *ži* being the Chinese for the following word *gñis*, the writer was perhaps a Chinaman or in the habit of using Chinese.

**3. M. Tagh. 0436.** (Paper: 1 fol., containing a complete document, *c.* 27 × 6·5 cm.; ll. 4 of normal epistolary *Dbu-can* writing.)

The text is a letter, as follows:

[1] ◌ ǀ: ǀ tsha ǀ bo ǀ Btshan ǀ ra ‖ dañ ǀ tsha ǀ mo ǀ Lha ǀ ldem ǀ stañs ǀ bsal · bya [1] ǀ ǀ La ǀ Stag ǀ brla ǀ ḫi ǀ mchid ǀ gsol ǀ ba ǀ phyog

[2] s ǀ su ǀ tugs ǀ bde ǀ ḫam ǀ myī ǀ bde ǀ mchid ǀ yi · ge ǀ las ǀ sñun ǀ gsol ǀ źiṅ ǀ mchis ǀ na ǀ ḫdrul ǀ ba ǀ la ǀ bag ǀ

[3] ḫsad ǀ par ǀ gsol ǀ mchid · yi ǀ ge ǀ ḫdi ǀ gsol ǀ na (?) ǀ slan ǀ chad ǀ pyogsu ǀ thug ǀ bde ǀ ba ǀ dañ ǀ noñ ǀ źo ǀ

[4] mchid ǀ par ǀ na ǀ smon ǀ chiñ ǀ mchis ǀ ǀ

'To grandson Btshan-ra and grand-daughter Lha-ldem (*stañs-bsal-bya?*): letter of L(h)a Stag-brla. Desiring to know by letter concerning your health, whether you, on your side, are happy or not, in this missive I am writing only a short inquiry. For the future I pray that you, on your side, may be happy and in good health.[2]

Seeing that among the documents we have several letters addressed to 'grandsons' (*tsha-bo*), it seems possible that the term is a politeness only.

## PLATE CXXXII.

**1. E. G. 023. jj.** (Paper: *c.* 18 × 8 cm.; ll. 6 of ordinary *Dbu-can* script. On the reverse, really the obverse, ll. 6 of the same.)

The fragment gives directions for a certain charm, which has the effect of making water flow in a dried torrent bed, leaves grow on parched wood, children be born to the childless, and so forth. Mainly in verse.

ll. 2–3: gcig · gi · rjes · su · gcig · ḫoñ · na ǀ
klun · skam · las · kyañ · chu · rgyun · ḫbab ǀ
śi[ñ] · skam · las · kyañ · lo · ḫdab · rgyas ǀ
bu · tsha · med · p²na · bu · thob · ḫgyur ǀ

The reverse contains the preceding part of the same text, which refers to a *mo* or cast of dice (?), concerning which form of divination see Professor A. H. Francke's article in the Berlin Academy *Sitzungsberichte*, Phil.-Hist. Klasse, 1924, pp. 10–12.

**2. E. G. 023. aa.** (Paper, fol. 1, numbered 14, *c.* 19 × 8·5 cm.; ll. 7 of elegant, formal *Dbu-can* script. The reverse, really the obverse, is similar.)

Interpretation of a lucky *mo*, which is not to be shown to any one.

ll. 2–3: ǀ khyod · ci · byas · tshabs · su · ḫgro · bar · ḫdug ǀ khyim · cha · don · cha · bzañ ǀ mo · ḫdi · mi · la · ma · bśad · sñiñ · la · ḫtshoñs ǀ

The reverse contains the preceding part of the same text.

**3. KK. v. b. 031. h.** (Paper: *c.* 14·5 × 11 cm.; two concentric circular bands, enclosing a flower-shaped figure of four petals with a circular centre. In the five compartments are pieces of minute *Dbu-med* script: outside the figure are two lines to left and a short phrase to right, in similar script. Reverse, a similar figure. An attached leaf has ll. 9 + 8 of text.)

The object is an amulet consisting of invocations within the figure and a direction outside to the effect that the document is to be worn on the body.

*In the centre:* [1] 'Oṃ · maṃ · maṃ [2] ṅga · la · 'a · yu · [3] me · yoñsu · sdu · 'añ · [4] dzi · dha · ra · ma · ma · sid · dha · [5] sa · rba · gsol · cig · [6] sā · ha [= Oṃ maṅgala āyur me yoñsu · sdu : añji dhara (?) mama siddha sarva gsol · cig : svāhā].

*At the top:* [1] 'ōṃ : [2] ōṃ · 'a · tsa · la · ṅga · du · [3] bhad · tra · bdag · la · dṅos · grub · thaṃ[s · ca]d · [4] gsol · 1. sa · ha [= Oṃ āṃ acalāṅga (?) du bhadra bdag · la · dṅos · grub · thams · cad (sarvasiddhi) · gsol 1. svāhā].

*At the left:* [1] 'Oṃ [2] 'a (?) · 'In · tra · ni · la · bhad · tra · [3] 'an · dzi · dhi · ra · ma · ma · si · ti · thaṃ[s · ca]d · [4] gsol · ḫdi · sā · ha [= Oṃ hā Indranīla bhadra añji (?) dhira (dhara?) mama siddhi thams · cad · gsol · ḫdi ǀ svāhā].

*At the bottom:* [1] 'Oṃ [2] tsañ · ma · ḫdu · tra · ma · dha · ra · [3] bhad · tra · 'an · dzi · dha · ra · ma · ma [4] sa · rba · si · ti · gsol · 1. [5] sa · ha [= Oṃ tsañ mad (?) uttama dhara bhadra añji (?) dhara mama sarva siddhi gsol 1. svāhā].

[1] Added below line.

[2] *akṣara* noted for omission.

*At the right*: [1] 'ōṃ · [2] ta · tvad · bha · ba · dza · ka · ta · [3] bhad · tra · 'an · dzi · dha · ra · bdag · [4] la · dṅos · grub · tham[s · ca]d · gsol · 1. [5] sa · ha [= Ōṃ tattva bhava jagad bhadra añji (?) dhara bdag · la · dṅos · grub · thams · cad (sarvasiddhi) gsol 1. svāhā].

*At the left*: [1] lus · la · ḥchaṅ · paḥi · ḥkhor · lo · yin · phyi · sman · lo (mo ?) · lṅa · [2] naṅ · rig · pa · ḥdzin · paḥi · lha · mo ‖ gsaṅ · pa [= maṇḍala to be attached to the body: afterwards beneficial five years: the goddess of him who holds inner knowledge. Secret].

*At the right*: dar · kaṅ.

The text on the attached leaf gives prognostications and ritual directions by a *bla-ma* (*guru*).

**4. K. K. v. b. 012. c.** (Paper, fol. 1, numbered 5, *c.* 18 × 9·5 cm.; ll. 10 of neat *Dbu-med* script with notes above and below in a smaller hand. The reverse is similar.)

Fragment of a medical text.

*Begins*: sman · rnams · btaṅ · yaṅ · sman · rtags · lṅa ı
lhag · par · skoms · dad · che · ba · ni ‖
ḥtshoḥ · lṅa (?) · mi (?) · [2] ḥgyud · ḥchiḥ · bar · ḥgyur ‖
ḥchi : ba · brtag · paḥo ‖ı

The reverse contains the preceding part of the same text.

**5. K. K. v. b. 07. d.** (Paper: *c.* 33 × 10 cm., fragmentary at right; ll. 5 of neat *Dbu-med* script, with interlinear annotations in a minute hand. Reverse, ll. 5, containing a prior portion of the same text with similar annotations.)

Buddha, being dejected, is comforted with the song called *Rdo-rjeḥi-glu* (*Vajra-gītā*), which, however, does not seem to be identical with anything known by that name.

*Begins*: ḥdir · mthar · bcom · ldan · ḥdas · śin · tu · ḥjuṅs · par · mchog · tu · bdeḥ · ba · chen · po · ḥi · ro · gcig · du · ldan · pas · rig · ma · daṅ · lhan · cig · du · žu · ba · las · sa · bon · gyi · gzugs · su · cher · yid · mi · bdeḥ · ba · thob · ste ‖ śin · tu · mya · ṅan · kyis · gduṅs · ste ‖ bcom · ldan · ḥdas · kyi · thugs · sad · par · byed · pa · ḥi · Rdo · rje · ḥi · glu · tiṅ · ḥdzin · spaṅs · nas · su ‖
ı bdeḥ · chen · ḥdod · nas · bdag · la · sbyor ‖
ı khyod · ma · bžugs · na · bdag · ḥgum · pas ‖
ı ḥdod · pa · ḥi · ḥjig · rten · sñan · mnan · nas ‖
ı gtso · bo · ci · phyir · stoṅ · ñid · bžugs ‖

**6. K. K. v. b. 07. f.** (Paper: *c.* 35 × 10·3 cm., fragmentary at right and left; ll. 10 of regular, elegant *Dbu-med* script. Reverse, ll. 10 of the same.)

Fragment of a ritual (*gtor-ma* = *bali*).

l. 2. bum · pa · lhag · ma · la · lha · du · yod · pa · rnams · ci · rigs · par · bskyed ‖ cho · ga · lhag · ma · ḥdraḥo ‖ de · ñi · daṅ · mtshan · mo · lan. 3. du ‖ stor · ma · sbyin · žiṅ · de · bžin · bzlas.

## PLATE CXXXIII.

**1 K. K. v. b. 07. b.** (Paper: *c.* 40·5 × 10 cm., fragmentary at left and right; ll. 8 of elegant *Dbu-med* script, with interlinear notes in a minute hand. Reverse, a continuation of the same text, with similar annotations.)

L. 1 refers to a *Bsten-baḥi-rnam-par-dbye-baḥi-tshigs-su-bcad-pa* (*Upāsanā* (*āśrayaṇa* ?)-*vikurvaṇa-kārikā* ?) in 7 *kārikās*, whereof it proceeds to quote and comment upon the fifth:

bsten · pa · sten · daṅ · gži · daṅ · ni ı
rgyu · mtshan · daṅ · ni · yoṅs · sña · de ı
rgyu · daṅ · ye · śes · ži . . . .
— pa · brtson · bcas · luṅ · gis · phyug ı

**2. K. K. v. b. 012. a.** (Paper: fol. 1, numbered Ka 4, *c.* 24 × 10 cm.; ll. 8 of artistic *Dbu-med* script. The reverse is similar.)

A food-scattering (*gtor-ma*, *bali*) ritual in verse, with invocation of various divinities: the object is to avert disease. Begins:

⊸ ‖ ‖ hūṃ । re । gur । thuḥ । paḥi । nan । šed । na ‖
khram । kyi । bdag । mo । gtor । ma । bžes ‖

The text continues overleaf.

**3. K. K. v. b. 010. a.** (Paper: fol. 1, numbered 1, *c.* 20 × 13 cm.; ll. 9 of neat *Dbu-med* script, in places rubbed away. On the reverse a short line of text.)

The text begins with a reference to the Bhagavad *Rdo-rje-gtum-po-gziḥ-brcid (gzi-brjid)-ḥbar-ba* (*Vajra-caṇḍa-pratāpojjvala* ?). It proceeds to explain the ritual of a *gtor-ma* (*bali*, 'scattered oblation').

The reverse, really the obverse, gives the title *Rdo-rje-gtum-po-(bžugs-so*, 'here begins').

**4. K. K. v. b. 017. d.** (Paper: 1 fol., numbered 13, *c.* 21 × 10 cm.; ll. 8 of very neat and artistic *Dbu-med* script. Reverse, ll. 8 of the same, followed by a note in a minute hand.)

The text is a verse description of some place, apparently the realm of the lord of the dead (Gšin-rje = Yama), whereof it describes the unhappy state. Begins:

. . । dbus · su · dbaḥ · rlabs · che ‖
gaṅs · di · rnams · ni · gran · la · bsil ‖
brag · di · la · bsdad · kyaṅ · skyo · dub · che ‖
tsha · rgo · can · la · lo · tog . bral ‖
gšin · rje · gnas · paḥi · sa · phyogs · su ‖

Possibly this is from a poem of Mi-la Ras-pa, with whose style it accords.

The text is continued on the reverse.

**5. K. K. v. b. 031. b.** (Paper: 1 fol., numbered 39, *c.* 22·5 × 9 cm.; ll. 8 of minute, neat *Dbu-med* script, rather rubbed. Reverse, ll. 8 of the same.)

Moral instructions to a son (*bu*) or youth. Begins:

. . . nad · ḥdu · ba · ḥkhrug · paḥi · ñams · med ‖
bu · khyod · kyaṅ · bde · ba · bžed · pa · na ‖
mi · ña · zer · ñon · la · phyir · ḥbreṅs · daṅ ‖
ña · spyod · ltos · laṅ · sña · na · sgoms ‖

The same text is continued on the reverse.

# INDEX OF OBJECTS FOUND, ACQUIRED, ETC.

Objects proposed for presentation to the British Museum are marked with an asterisk.

# PLATES DESCRIBED OR REFERRED TO IN THE TEXT

## OBJECTS

## PLANS

# FIGURES DESCRIBED OR REFERRED TO IN THE TEXT



* See Add. et Corr.

* See Add. et Corr.

# GENERAL INDEX

The system followed in the transcription of Sanskrit and other Indian as well as of Persian, Turkī, and Arabic words closely agrees with that approved by the International Congress of Orientalists in 1894. In the case of local names, no attempt has been made to restore the original forms of any Persian or Arabic elements contained in them or to systematize the spelling of such Turkī words as enter into their composition, but the actual forms heard on the spot have been reproduced both in text and maps in a simplified form of phonetic transcription as adopted for cartographical use by the Survey of India. The spelling of Chinese names and terms conforms to the Wade system of transliteration (as adopted in Professor A. H. Giles's *Chinese-English Dictionary*), except in Appendix *A*, where M. Maspero has followed the system adopted by the École Française d'Extrême-Orient. Where discrepancies have occurred in transcription, the Index is to be taken as a criterion.

The first occasion on which a Chinese word is given in the original characters is indicated in the Index by printing the number of the page in italics. Page numbers in heavy type indicate the principal passages where subjects frequently referred to have been discussed.



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